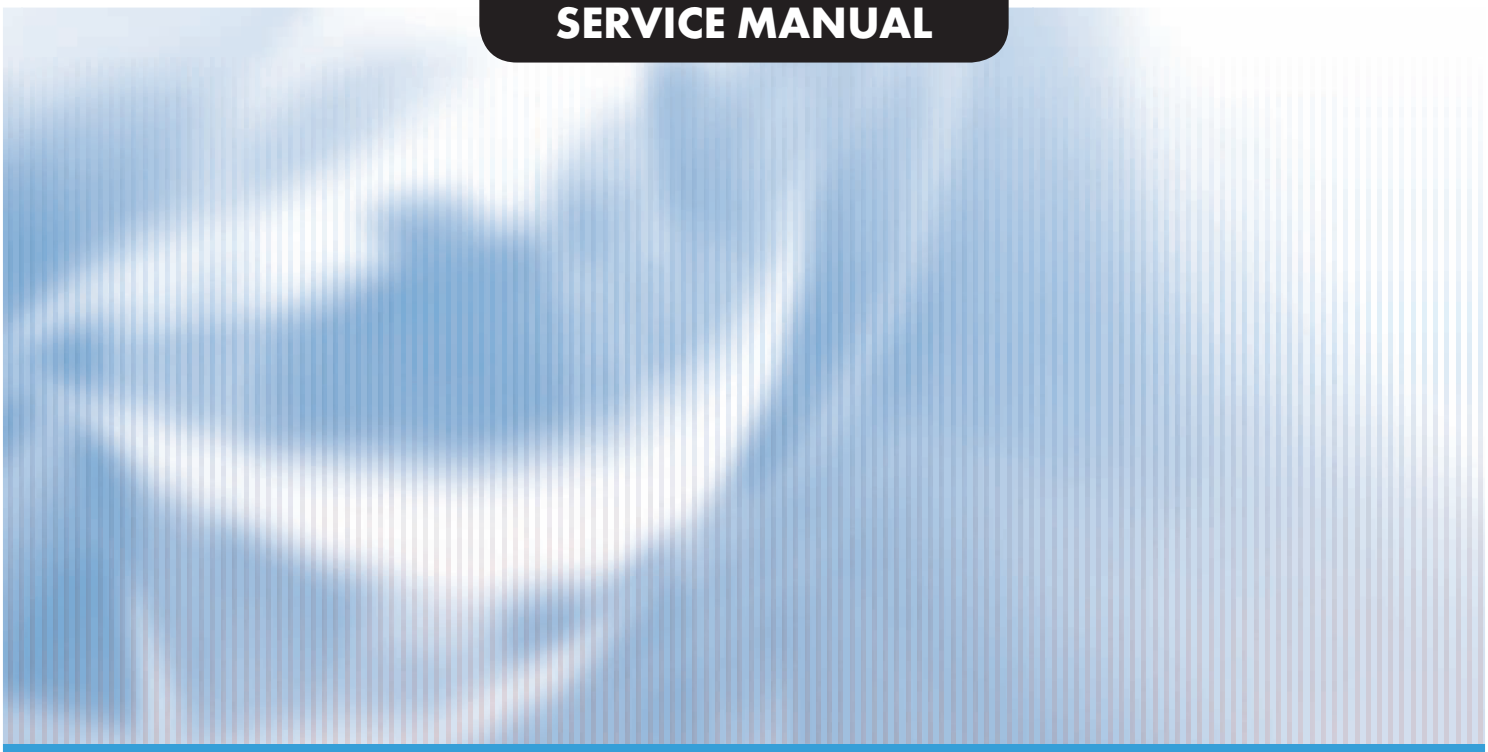
SERVICE MANUAL



MULTI COMBI

OUTDOOR AND INDOOR UNITS

CASSETTE, FLOOR&CEILING, DUCT UNITS
OUTDOOR UNITS (36k,42k)

sinclair
AIR CONDITIONING

COMBINATION TABLE

(unit: kW)

MC-E18AI		MC-E24AI		MC-E28AI			MC-E36AI							
1 model	2 models	2 models	3 models	2 models	3 models	4 models	2 models		3 models			4 models		
2,1	2,1+2,1	2,1+2,1	2,1+2,1+2,1	2,1+2,1	2,1+2,1+2,1	2,1+2,1+2,1+2,1	2,1+2,1	2,6+7,1	2,1+2,1+2,1	2,1+3,5+5,0	2,6+3,5+5,0	2,1+2,1+2,1+2,1	2,1+2,1+5,0+5,0	2,6+2,6+2,6+2,6
2,6	2,1+3,5	2,1+3,5	2,1+2,1+5,0	2,1+3,5	2,1+2,1+5,0	2,1+2,1+2,1+5,0	2,1+2,6	3,5+3,5	2,1+2,1+2,6	2,1+3,5+7,1	2,6+3,5+7,1	2,1+2,1+2,1+2,6	2,1+2,6+2,6+2,6	2,6+2,6+2,6+3,5
3,5	2,6+3,5	2,6+2,6	2,1+2,6+5,0	2,6+2,6	2,1+2,6+5,0	2,1+2,1+2,6+5,0	2,1+3,5	3,5+5,0	2,1+2,1+3,5	2,1+5,0+5,0	2,6+5,0+5,0	2,1+2,1+2,1+3,5	2,1+2,6+2,6+3,5	2,6+2,6+2,6+5,0
	2,1+2,6	2,6+5,0	2,6+2,6+3,5	2,6+5,0	2,6+2,6+2,6	2,1+2,6+2,6+3,5	2,1+5,0	3,5+7,1	2,1+2,1+5,0	2,1+5,0+7,1	2,6+5,0+7,1	2,1+2,1+2,1+5,0	2,1+2,6+2,6+5,0	2,6+2,6+2,6+7,1
	2,6+2,6	3,5+5,0	3,5+3,5+3,5	3,5+5,0	2,6+3,5+3,5	2,6+2,6+3,5+3,5	2,1+7,1	5,0+5,0	2,1+2,1+7,1	2,6+2,6+2,6	3,5+3,5+3,5	2,1+2,1+2,1+7,1	2,1+2,6+2,6+7,1	2,6+2,6+3,5+3,5
		2,1+2,6	2,1+2,1+2,6	2,1+2,6	3,5+3,5+5,0	2,1+2,1+2,1+2,6	2,6+2,6	5,0+7,1	2,1+2,6+2,6	2,6+2,6+3,5	3,5+3,5+5,0	2,1+2,1+2,6+2,6	2,1+2,6+3,5+3,5	2,6+2,6+3,5+5,0
		2,1+5,0	2,1+2,6+2,6	2,1+5,0	2,1+2,1+2,6	2,1+2,1+2,6+2,6	2,6+3,5	7,1+7,1	2,1+2,6+3,5	2,6+2,6+5,0	3,5+3,5+7,1	2,1+2,1+2,6+3,5	2,1+2,6+3,5+5,0	2,6+2,6+5,0+5,0
		2,6+3,5	2,1+3,5+3,5	2,6+3,5	2,1+2,6+2,6	2,1+2,1+3,5+3,5	2,6+5,0		2,1+2,6+5,0	2,6+2,6+7,1	3,5+5,0+5,0	2,1+2,1+2,6+5,0	2,1+2,6+5,0+5,0	2,6+3,5+3,5+3,5
		3,5+3,5	2,6+2,6+5,0	3,5+3,5	2,1+3,5+3,5	2,6+2,6+2,6+2,6			2,1+2,6+7,1	2,6+3,5+3,5	5,0+5,0+5,0	2,1+2,1+2,6+7,1	2,1+3,5+3,5+3,5	2,6+3,5+3,5+5,0
		5,0+5,0	2,1+2,1+3,5	5,0+5,0	2,6+2,6+3,5	2,1+2,1+2,1+3,5			2,1+3,5+3,5			2,1+2,1+3,5+3,5	2,1+3,5+3,5+5,0	3,5+3,5+3,5+3,5
			2,1+2,6+3,5		2,6+3,5+5,0	2,1+2,1+2,6+3,5						2,1+2,1+3,5+5,0		
			2,6+2,6+2,6		2,1+2,1+3,5	2,1+2,6+2,6+2,6								
			2,6+3,5+3,5		2,1+2,6+3,5	2,6+2,6+2,6+3,5								
					2,1+3,5+5,0									
					2,6+2,6+5,0									
					3,5+3,5+3,5									

MC-E42AI												
2 models		3 models			4 models				5 models			
2,1+2,1	2,6+7,1	2,1+2,1+2,1	2,1+3,5+7,1	2,6+5,0+5,0	2,1+2,1+2,1+2,1	2,1+2,1+5,0+5,0	2,1+3,5+3,5+5,0	2,6+2,6+5,0+5,0	2,1+2,1+2,1+2,1+2,1	2,1+2,1+2,1+5,0+5,0	2,1+2,6+2,6+2,6+2,6	2,6+2,6+2,6+2,6+2,6
2,1+2,6	3,5+3,5	2,1+2,1+2,6	2,1+5,0+5,0	2,6+5,0+7,1	2,1+2,1+2,1+2,6	2,1+2,1+5,0+7,1	2,1+3,5+3,5+7,1	2,6+2,6+5,0+7,1	2,1+2,1+2,1+2,1+2,6	2,1+2,1+2,6+2,6+2,6	2,1+2,6+2,6+2,6+3,5	2,6+2,6+2,6+2,6+3,5
2,1+3,5	3,5+5,0	2,1+2,1+3,5	2,1+5,0+7,1	2,6+7,1+7,1	2,1+2,1+2,1+3,5	2,1+2,6+2,6+2,6	2,1+3,5+5,0+5,0	2,6+3,5+3,5+3,5	2,1+2,1+2,1+2,1+3,5	2,1+2,1+2,6+2,6+3,5	2,1+2,6+2,6+2,6+5,0	2,6+2,6+2,6+2,6+5,0
2,1+5,0	3,5+7,1	2,1+2,1+5,0	2,1+7,1+7,1	3,5+3,5+3,5	2,1+2,1+2,1+5,0	2,1+2,6+2,6+3,5	2,1+3,5+5,0+7,1	2,6+3,5+3,5+5,0	2,1+2,1+2,1+2,1+5,0	2,1+2,1+2,6+2,6+5,0	2,1+2,6+2,6+2,6+7,1	2,6+2,6+2,6+2,6+7,1
2,1+7,1	5,0+5,0	2,1+2,1+7,1	2,6+2,6+2,6	3,5+3,5+5,0	2,1+2,1+2,1+7,1	2,1+2,6+2,6+5,0	2,1+5,0+5,0+5,0	2,6+3,5+3,5+7,1	2,1+2,1+2,1+2,1+7,1	2,1+2,1+2,6+2,6+7,1	2,1+2,6+2,6+3,5+3,5	2,6+2,6+2,6+3,5+3,5
2,6+2,6	5,0+7,1	2,1+2,6+2,6	2,6+2,6+3,5	3,5+3,5+7,1	2,1+2,1+2,6+2,6	2,1+2,6+2,6+7,1	2,6+2,6+2,6+2,6	2,6+3,5+5,0+5,0	2,1+2,1+2,1+2,6+2,6	2,1+2,1+2,6+3,5+3,5	2,1+2,6+2,6+3,5+5,0	2,6+2,6+2,6+3,5+5,0
2,6+3,5	7,1+7,1	2,1+2,6+3,5	2,6+2,6+5,0	3,5+5,0+5,0	2,1+2,1+2,6+3,5	2,1+2,6+3,5+3,5	2,6+2,6+2,6+3,5	2,6+5,0+5,0+5,0	2,1+2,1+2,1+2,6+3,5	2,1+2,1+2,6+3,5+5,0	2,1+2,6+2,6+3,5+7,1	2,6+2,6+2,6+5,0+5,0
2,6+5,0		2,1+2,6+5,0	2,6+2,6+7,1	3,5+5,0+7,1	2,1+2,1+2,6+5,0	2,1+2,6+3,5+5,0	2,6+2,6+2,6+5,0	3,5+3,5+3,5+3,5	2,1+2,1+2,1+2,6+5,0	2,1+2,1+2,6+3,5+7,1	2,1+2,6+2,6+5,0+5,0	2,6+2,6+3,5+3,5+3,5
		2,1+2,6+7,1	2,6+3,5+3,5	3,5+7,1+7,1	2,1+2,1+2,6+7,1	2,1+2,6+3,5+7,1	2,6+2,6+2,6+7,1	3,5+3,5+3,5+5,0	2,1+2,1+2,1+2,6+7,1	2,1+2,1+2,6+5,0+5,0	2,1+2,6+3,5+3,5+3,5	2,6+2,6+3,5+3,5+5,0
		2,1+3,5+3,5	2,6+3,5+5,0	5,0+5,0+5,0	2,1+2,1+3,5+3,5	2,1+2,6+5,0+5,0	2,6+2,6+3,5+3,5	3,5+3,5+3,5+7,1	2,1+2,1+2,1+3,5+3,5	2,1+2,1+3,5+3,5+3,5	2,1+2,6+3,5+3,5+5,0	2,6+3,5+3,5+3,5+3,5
		2,1+3,5+5,0	2,6+3,5+7,1	5,0+5,0+7,1	2,1+2,1+3,5+5,0	2,1+2,6+5,0+7,1	2,6+2,6+3,5+5,0	3,5+3,5+5,0+5,0	2,1+2,1+2,1+3,5+5,0	2,1+2,1+3,5+3,5+5,0	2,1+3,5+3,5+3,5+3,5	2,6+3,5+3,5+3,5+5,0
					2,1+2,1+3,5+7,1	2,1+3,5+3,5+3,5	2,6+2,6+3,5+7,1		2,1+2,1+2,1+3,5+7,1	2,1+2,1+3,5+5,0+5,0	2,1+3,5+3,5+3,5+5,0	3,5+3,5+3,5+3,5+3,5

When indoor rated total capacity exceeds the outdoor rated capacity, cannot ensure that each indoor unit actual running capacity could reach its value required by rated capacity.

For MC-E28AI, MC-E36AI, MC-E42AI it is not allowed to install one indoor unit only.

If the specification of outdoor unit gas valve is 3/8, but curstomer needs to install 18 indoor unit so that it is need to use a “pipe joint subassembly” to make a conversion joint with outdoor unit gas valve and connection pipe.

unit	MC-C12AI			MC-C18AI			MC-C24AI		
	low	mid	High	low	mid	High	low	mid	High
fan motor speed (RPM)	620	720	820	620	720	820	510	560	610
air flow volume (m^3/h)	450	500	600	450	500	600	850	950	1180
noise level dB(A)	42	44	46	42	44	46	35	37	39

Model of Outdoor Unit		MC-E36AI	MC-E42AI
Cooling capacity* (W)	**max**	10000	13600
	nom	9790	11600
	min	2100	2100
Total power input in cooling mode* (W)	**max**	4300	4900
	nom	3030	3590
	min	1300	2000
EER* (nominal)		3,23	3,23
Heating capacity* (W)	**max**	12000	14000
	nom	11000	13000
	min	2600	2600
Total power input in heating mode* (W)	**max**	4140	4400
	nom	3010	3540
	min	1500	2000
COP* (nominal)		3,65	3,67

PRODUCT

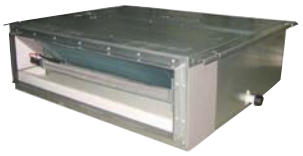
1 MODELS LIST

1.1 Outdoor Unit

Units Series	Model	Product Code	Capacity		Ref.	Power Supply	Appearance
			Cooling (kW)	Heating (kW)			
Outdoor Unit	MC-E36AI	CN860W0011	9.789	11	R410A	220~ 240V-1Ph-50Hz	
	MC-E42AI	CN860W0020	11.6	13			

1.2 Indoor Unit

1.2.1 Duct type

Units Series	Model	Product Code	Capacity		Ref.	Power Supply	Appearance
			Cooling (kW)	Heating (kW)			
Duct Type Indoor Unit	MC-D09AI	CN210N0010	2.5	2.80	R410A	220~ 240V -1Ph-50Hz	
	MC-D12AI	CN210N0020	3.5	3.85			
	MC-D18AI	CN210N0030	5.0	5.50			
	MC-D21AI	CN210N0040	6.0	6.60			
	MC-D24AI	CN210N0050	7.1	8.00			

1.2.3 Floor ceiling type

Units Series	Model	Product Code	Capacity		Ref.	Power Supply	Appearance
			Cooling (kW)	Heating (kW)			
Floor/ Ceiling Type Indoor Unit	MC-F09AI	CN610N0010	2.5	2.80	R410A	220~ 240V -1Ph-50Hz	
	MC-F12AI	CN610N0020	3.5	3.85			
	MC-F18AI	CN610N0030	5.0	5.50			
	MC-F18AI	CN610N0040	7.1	8.00			

1.2.2 Cassette type

Units Series	Model	Product Code	Capacity		Ref.	Power Supply	Appearance
			Cooling (kW)	Heating (kW)			
Cassette Type Indoor Unit	MC-C24AI	CN510N0030	7.1	8.00	R410A	220~ 240V -1Ph-50Hz	
	MC-C12AI	CN510N0040	3.5	4.0	R410A	220~ 240V -1Ph-50Hz	
	MC-C-18AI	CN510N0050	4.5	5.0			

2 NOMENCLATURE

MC	-	E	09	A	I
1	2	3	4	5	6

NO.	Description	Options
1	MC	Multi combi serie
2	-	-
3	Type of unit	E-outdoor unit H- wall mounted unit D- duct unit C- cassette unit F- floor ceiling unit
4	Capacity	0.1 BTU
5	Refrigerant	R410A
6	Inverter	

3 FUNCTION

Function		Duct type	Cassette type	Floor ceiling type
For Comfortable Air Conditioning	Fan operation Mode	●	●	●
	Auto Swing Controller	-	●	●
	Timer Selector	●	●	●
	Auto Mode Operation	●	●	●
	Cool Mode Operation	●	●	●
	Heat Mode Operation	●	●	●
	Dry Mode Operation	●	●	●
	Fan Mode Operation	●	●	●
	Sleep mode setting	●	●	●
	Drain Pump	●	●	-
For Flexible Control	Wired Controller	●	●	●
	Wireless Controller	●	●	●

●:Have Functions
- :No Functions

PIPE DIAMETER

SERIES			**MULTI COMBI-OUTDOOR UNITS**				
MODEL			**MC-E18AI**	**MC-E24AI**	**MC-E28AI**	**MC-E36AI**	**MC-E42AI**
Pipe diameter	Liquid side	mm x qty	6,0x2	6,0x3	6,0x4	6,0x3/10,0x1	6,0x4/10,0x1
	gas side	mm x qty	10,0x2	10,0x3	10,0x4	10,0x2/12,0x1/16,0x1	10,0x2/12,0x2/16,0x1

Model			MC-E36AI	MC-E42AI
Capacity	Cooling	kW	9.789	11.6
	Heating	kW	11	13
Power supply		V/Ph/Hz	220-240/1/50	220-240/1/50
Rated input2	Cooling	kW	3.030	3.590
	Heating	kW	3.010	3.545
Rated current2	Cooling	A	13.87	16.43
	Heating	A	13.78	16.22
Refrigerant	Type		R410A	R410A
	Charge volume	kg	3.6	4.8
Compressor	Brand	—	MITSUBISHI	MITSUBISHI
	Model	—	TNB220FLHMC	TNB306FPGM
	Type	—	Inverter Scroll	Inverter Scroll
	Quantity	—	1	1
	Power Input	W	2200.00	3010.00
	Rated Load Amp (RLA)	A	9.70	13.50
	Thermal protector	—	internal protect units	internal protect units
Fan	Type		Axial-flow	Axial-flow
	Quantity		1	1
Fan Motor	Model	—	FW60K	LW140B
	Insulation class	—	B	B
	Moisture protection	—	IP44	IP44
	Drive Type	—	direct drive	direct drive
	Speed (H/M/L)	rpm	860±20+760±20+540±20	840+620+520
	Power Output	HP	60	140
	Full Load Amp(FLA)	A	1	1.4
	Capacitor	μF	3	7
Condenser	Material	—	Copper tube-Aluminum fin	Copper tube-Aluminum fin
	Face Area	sq.ft	7.09	11.28
		m2	0.66	1.05
	Pipe Diameter	mm	7.94	7.94
	Number of rows	mm	2	2
	Tube pitch(a)x row pitch(b)	mm	22*19.05	22*19.05
	Fins per Inch(FPI)	—	15	15
	Fin type	—	fenestrate plain and hydrophilic film	fenestrate plain and hydrophilic film
	Number of circuits	—	8	8
	Length(L) x Height(H) x Width(W)	mm	806.45*44*813	994.45*44*1056
Airflow rate		m^3/h	3000	5500
Moisture protection			IPX4	IPX4
Wiring	Area*quantity	mm2	6.00	6.00
Connecting pipe	Gas Pipe(to indoor unit)	inch	3/8+3/8+1/2+5/8	3/8+3/8+1/2+1/2+5/8
	Liquid(AC)	inch	1/4+1/4+1/4+3/8	1/4+1/4+1/4+1/4+3/8
	Connection method		Flare Connection	Flare Connection
Sound pressure level		dB(A)	54	54
Circuit breaker		A	32	32
Operation Range of outdoor unit	Cooling	℃	-5~48	-5~48
	Heating	℃	-15~27	-15~27

Note:"1" is tested under standard condition

"2"is tested under rated condition according to CE/Eurovent standard

4 PRODUCT DATA

4.1 Product data of outdoor

Model	Heat pump		MC-E36AI	MC-E42AI
	Product Code		CN860W0010/CN860W0011	CN860W0020
Capacity	Cooling	kW	9.789	11.6
	Heating	kW	11	13
Capacity adjustment range		%	23% ~ 150%	19%~ 150%
EER		kW/kW	3.23	3.23
COP		kW/kW	3.65	3.67
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50
Refrigerant	Type		R410a	R410a
	Charge volume	kg	3.6	4.8
Compressor	Brand		MITSUBISHI	MITSUBISHI
	Type		DC inverter rotor type	DC inverter rotor type
	Quantity		1	1
Moisture protection			IP×4	IP×4
Wiring connection	Area*quantity	mm^2	6*3	6*3
Connecting pipe	Connection method		Flare Connection	Flare Connection
Sound pressure level		dB(A)	54	54
Outline dimension	W×D×H	mm	950×412×840	1015×440×1103
Package dimension	W×D×H	mm	1100×450×905	1155×490×1220
Net weight		kg	75	102
Gross weight		kg	78	112
Maximum drive IDU NO.		unit	4	5
Max. equivalent connection pipe length		m	70	80
Loading quantity		20'GP	52	52
		40' GP	108	48
		40' HQ	108	48

Notes:

a. The rated cooling capacity data is measured under the following work condition: Indoor Temperature is 27℃ DB, 19 ℃ WB. Outdoor Temperature is 35 ℃ DB.The rated heating capacity data is measured under the following work condition: Indoor Temperature is 20℃ DB. Outdoor Temperature is 7℃ DB, 6℃ WB.

b. The data will change with the change of products. Refer to those parameters listed on nameplate.

c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.

4.2 Product data of indoor

4.2.1 Duct Type

Model	Heat pump		MC-D09AI	MC-D12AI	MC-D18AI
	Product Code		CN210N0010	CN210N0020	CN210N0030
Capacity	Cooling	kW	2.5	3.5	5.0
	Heating	kW	2.80	3.85	5.50
Power supply		V-Ph-Hz	220 ~ 240-1- 50	220 ~ 240-1- 50	220 ~ 240-1- 50
Motor power input		kW	0.075	0.065	0.08
Air flow volume		m^3/h	450	550	700
		CFM	265	324	412
Sound pressure level(H/L)		dB(A)	37/31	39/32	40/33
Fan motor	Output	kW	0.041	0.036	0.044
	Running current	A	0.406	0.348	0.428
Connecting pipe	Gas	inch	3/8″(9.52mm)	3/8"(9.52mm)	1/2″(12.7mm)
	Liquid	inch	1/4″(6.35mm)	1/4″(6.35mm)	1/4″(6.35mm)
	Connection method		Flare Connection	Flare Connection	Flare Connection
Drain pipe	External dia.	mm	Φ20	Φ20	Φ20
	Thickness	mm	1.5	1.5	1.5
Outline dimension	W×D×H	mm	700×200×615	700×200×615	900×200×615
Package dimension	W×D×H	mm	893×305×743	893×305×743	1123×305×743
Net Weight		kg	22	23	27
Gross weight		kg	27	29	36
Loading quantity		20'GP	108	108	90
		40' GP	234	234	180
		40' HQ	234	234	180

Notes:

a. The rated cooling capacity data is measured under the following work condition: Indoor Temperature is 27℃ DB, 19 ℃ WB. Outdoor Temperature is 35 ℃ DB.The rated heating capacity data is measured under the following work condition: Indoor Temperature is 20℃ DB. Outdoor Temperature is 7℃ DB, 6℃ WB.

b. The data will change with the change of products. Refer to those parameters listed on nameplate.

c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.

Model	Heat pump		MC-D21AI	MC-D24AI
	Product Code		CN210N0040	CN210N0050
Capacity	Cooling	kW	6.0	7.1
	Heating	kW	6.60	8.00
Power supply		V-Ph-Hz	220~2400-1-50	220~2400-1-50
Motor power input		kW	0.11	0.11
Air flow volume		m^3/h	1000	1000
		CFM	589	589
Sound pressure level(H/L)		dB(A)	42/34	42/34
Fan motor	Output	kW	0.061	0.061
	Running current	A	0.588	0.588
Connecting pipe	Gas	inch	5/8″(15.9mm)	5/8″(15.9mm)
	Liquid	inch	3/8″(9.52mm)	3/8″(9.52mm)
	Connection method		Flare Connection	Flare Connection
Drain pipe	External dia.	mm	Φ20	Φ20
	Thickness	mm	1.5	1.5
Outline dimension	W×D×H	mm	1100×200×615	1100×200×615
Package dimension	W×D×H	mm	1323×305×743	1323×305×743
Net Weight		kg	31	31
Gross weight		kg	41	41
Loading quantity		20'GP	72	72
		40' GP	162	162
		40' HQ	162	162

Notes:

a. The rated cooling capacity data is measured under the following work condition: Indoor Temperature is 27℃ DB, 19 ℃ WB. Outdoor Temperature is 35 ℃ DB.The rated heating capacity data is measured under the following work condition: Indoor Temperature is 20℃ DB. Outdoor Temperature is 7℃ DB, 6℃ WB.

b. The data will change with the change of products. Refer to those parameters listed on nameplate.

c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.

4.2.2 Cassette type

Model	Heat pump		MC-C12AI	MC-C18AI	MC-C24AI
	Product Code		CN510N0040	CN510N0050	CN510N0030
Capacity	Cooling	kW	3.5	4.5	7.1
	Heating	kW	4.0	5.0	8
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50	220~240-1-50
Motor power input		kW	0.05	0.05	0.1
Air flow volume		m^3/h	600	600	1180
		CFM	353	353	694
Sound pressure level(H/L)		dB(A)	46	46	39/35
Fan motor	Output	kW	0.011	0.011	0.055
	Running current	A	0.25	0.25	0.535
Connecting pipe	Gas	inch	3/8″(9.52mm)	1/2″(12.7mm)	5/8″(15.9mm)
	Liquid	inch	1/4″(6.35mm)	1/4″(6.35mm)	3/8″(9.52mm)
	Connection method		Flare Connection	Flare Connection	Flare Connection
Drain pipe	External dia.	mm	31	31	31
	Thickness	mm	3	3	3
Outline Dimension	Body(W×D×H)	mm	570×570×230	570×570×230	840×840×240
	Panel(W×D×H)	mm	650×650×50	650×650×50	950×950×60
Package Dimension	Body(W×D×H)	mm	851×731×325	851×731×325	963×963×310
	Panel(W×D×H)	mm	733×673×117	733×673×117	1043×1028×130
Net Weight	Body	kg	18	18	30
	Panel	kg	6.5	6.5	6.5
Gross Weight	Body	kg	23	23	38
	Panel	kg	10	10	10
Loading quantity		20'GP	102	102	40
		40' GP	209	209	108
		40' HQ	246	246	128

Notes:

a. The rated cooling capacity data is measured under the following work condition: Indoor Temperature is 27℃ DB, 19 ℃ WB. Outdoor Temperature is 35 ℃ DB.The rated heating capacity data is measured under the following work condition: Indoor Temperature is 20℃ DB. Outdoor Temperature is 7℃ DB, 6℃ WB.

b. The data will change with the change of products. Refer to those parameters listed on nameplate.

c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.

4.2.3 Floor ceiling type

Model	Heat pump		MC-F09AI	MC-F12AI
	Product Code		CN610N0010	CN610N0020
Capacity	Cooling	kW	2.5	3.5
	Heating	kW	2.8	3.85
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50
Motor power input		kW	0.055	0.055
Air flow volume		m^3/h	650.0	650.0
		CFM	383.0	383.0
Sound pressure level(H/L)		dB(A)	40/36	40/36
Fan motor	Output	kW	0.3	0.3
	Running current	A	0.297	0.297
Connecting pipe	Gas	inch	3/8″(9.52mm)	3/8"(9.52mm)
	Liquid	inch	1/4″(6.35mm)	1/4″(6.35mm)
	Connection method		Flare Connection	Flare Connection
Drain pipe	External dia.	mm	17	17
	Thickness	mm	1.75	1.75
Outline dimension	W×D×H	mm	1220×700×225	1220×700×225
Package dimension	W×D×H	mm	1343×823×315	1343×823×315
Net Weight		kg	40.0	40.0
Gross weight		kg	50.0	50.0
Loading quantity		20'GP	48	48
		40' GP	96	96
		40' HQ	96	96

Notes:

a. The rated cooling capacity data is measured under the following work condition: Indoor Temperature is 27℃ DB, 19 ℃ WB. Outdoor Temperature is 35 ℃ DB.The rated heating capacity data is measured under the following work condition: Indoor Temperature is 20℃ DB. Outdoor Temperature is 7℃ DB, 6℃ WB.

b. The data will change with the change of products. Refer to those parameters listed on nameplate.

c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.

Model	Heat pump		MC-F18AI	MC-F24AI
	Product Code		CN610N0030	CN610N0040
Capacity	Cooling	kW	5	7.1
	Heating	kW	5.5	8.0
Power supply		V-Ph-Hz	220~240-1-50	220~240-1-50
Motor power input		kW	0.11	0.11
Air flow volume		m^3/h	950	1250
		CFM	559	736
Sound pressure level(H/L)		dB(A)	45/40	48/40
Fan motor	Output	kW	0.061	0.061
	Running current	A	0.588	0.588
Connecting pipe	Gas	inch	1/2″(12.7mm)	5/8″(15.9mm)
	Liquid	inch	1/4″(6.35mm)	3/8″(9.52mm)
	Connection method		Flare Connection	Flare Connection
Drain pipe	External dia.	mm	Φ17	Φ17
	Thickness	mm	1.75	1.75
Outline dimension	W×D×H	mm	122×700×225	1220×700×225
Package dimension	W×D×H	mm	1343×823×315	1343×823×315
Net Weight		kg	45	45
Gross weight		kg	54	54
Loading quantity		20'GP	48	48
		40' GP	96	96
		40' HQ	96	96

Notes:

a. The rated cooling capacity data is measured under the following work condition: Indoor Temperature is 27℃ DB, 19 ℃ WB. Outdoor Temperature is 35 ℃ DB.The rated heating capacity data is measured under the following work condition: Indoor Temperature is 20℃ DB. Outdoor Temperature is 7℃ DB, 6℃ WB.

b. The data will change with the change of products. Refer to those parameters listed on nameplate.

c. Noise was tested in semi-silenced room, so the actual noise value will be a little higher for change of ambient.

4.3 Working Temperature Range

	Indoor side state		Outdoor side stae	
	Dry bulb temp. ℃	Wet bulb temp. ℃	Dry bulb temp. ℃	Wet bulb temp. ℃
Rated Cooling	27	19	35	24
Max. cooling	32	23	48	26
Min. cooling	21	15	18	—
Rated Heating	20	15	7	6
Max. heating	27	—	24	18
Min. heating	20	15	− 15	− 16

Notes:

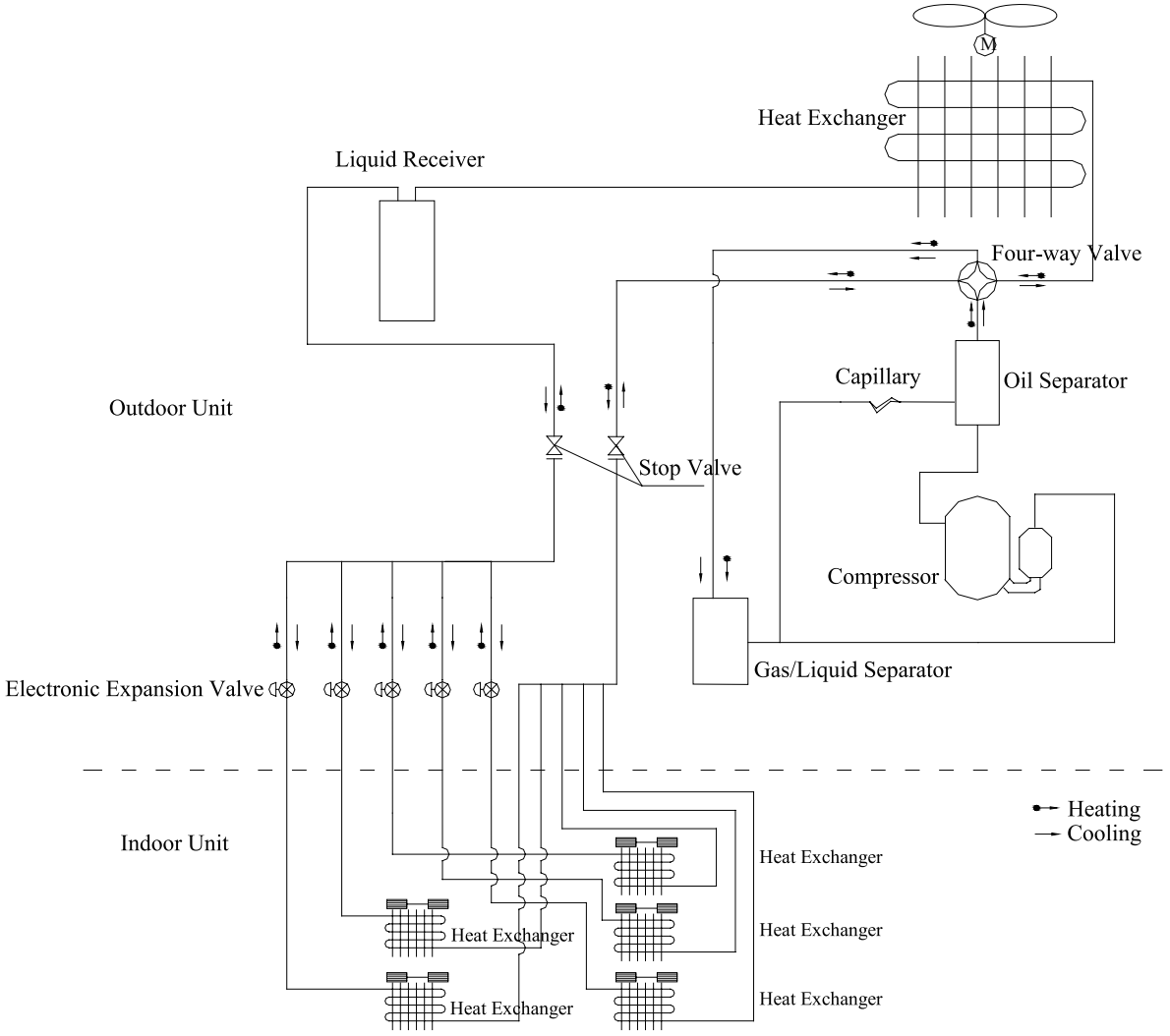
a. The heating/cooling capacity and noise listed below are all measured before the shipment.

b. All parameters listed below are measured under the standard working conditions. If there is any change, the parameters marked on the nameplate always prevail.

c. The heating capacity of the indoor unit just involves that of the heat pump but apart from that of the auxiliary electric heater.

5 PIPING DIAGRAM

Schematic Diagram of MULTI COMBI

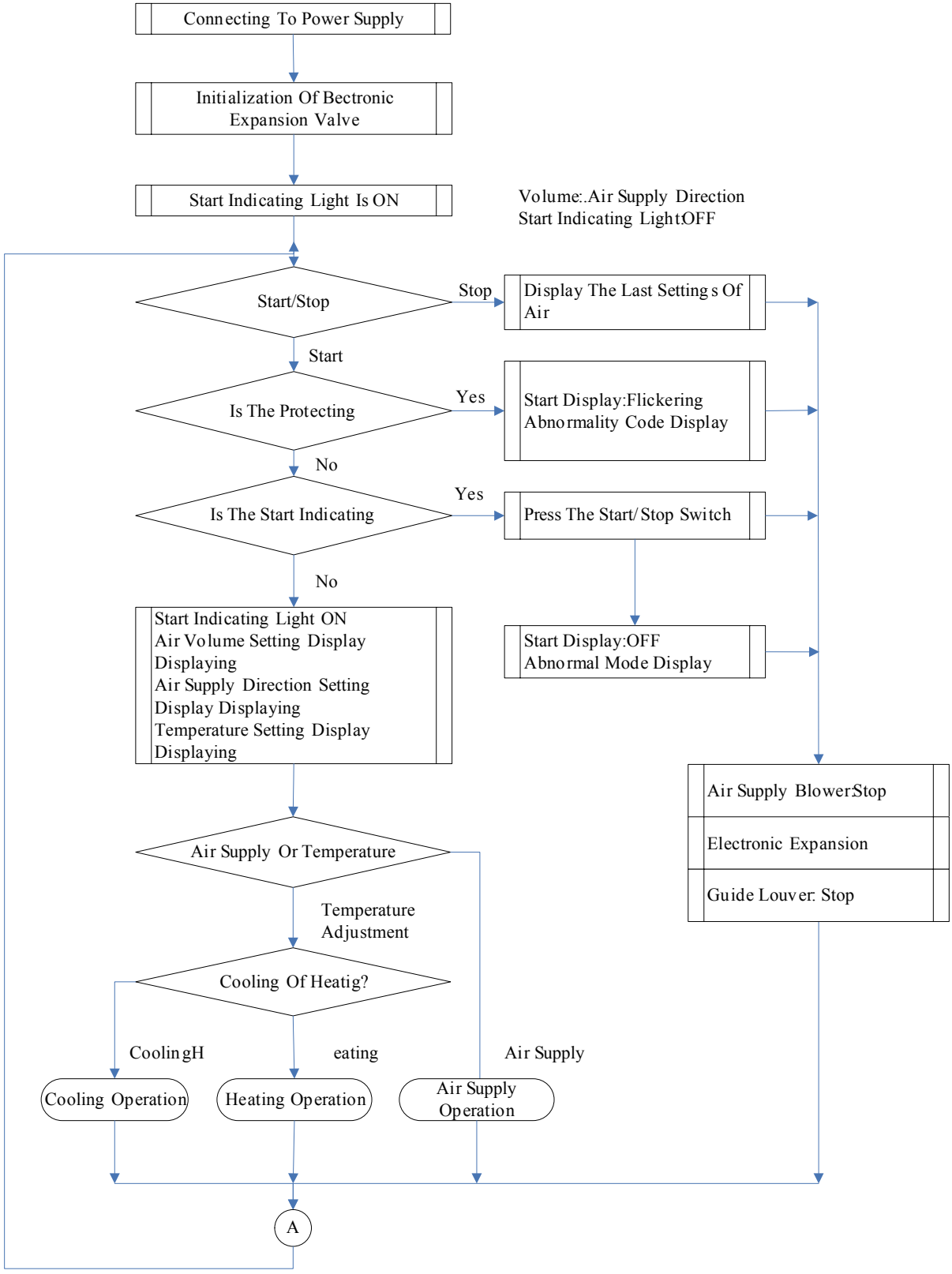


The outdoor and indoor units start to work once the power is switched on. During the cooling operation, the low temperature, low pressure refrigerant gas from the heat exchanger of each indoor unit gets together and then is taken into the compressor to be compressed into high temperature, high pressure gas, which will soon go to the heat exchanger of the outdoor unit to exchange heat with the outdoor air and then is turned into refrigerant liquid. After passing through the throttling device, the temperature and pressure of the refrigerant liquid will further decrease and then go the main valve. After that, it will be divided and go to the heat exchanger of each indoor unit to exchange heat with the air which needs to be conditioned. Consequently, the refrigerant liquid become low temperature, low pressure refrigerant gas again. Such a refrigeration cycle goes round and round to achieve the desired refrigeration purpose. During the heating operation, the four-way valve is involved to make the refrigeration cycle run reversely. The refrigerant radiates heat in the heat exchanger of the indoor unit (so do the electric heating devices) and absorb heat in the heat exchanger of the outdoor unit for a heat pump heating cycle so as to achieve the desired heating purpose.

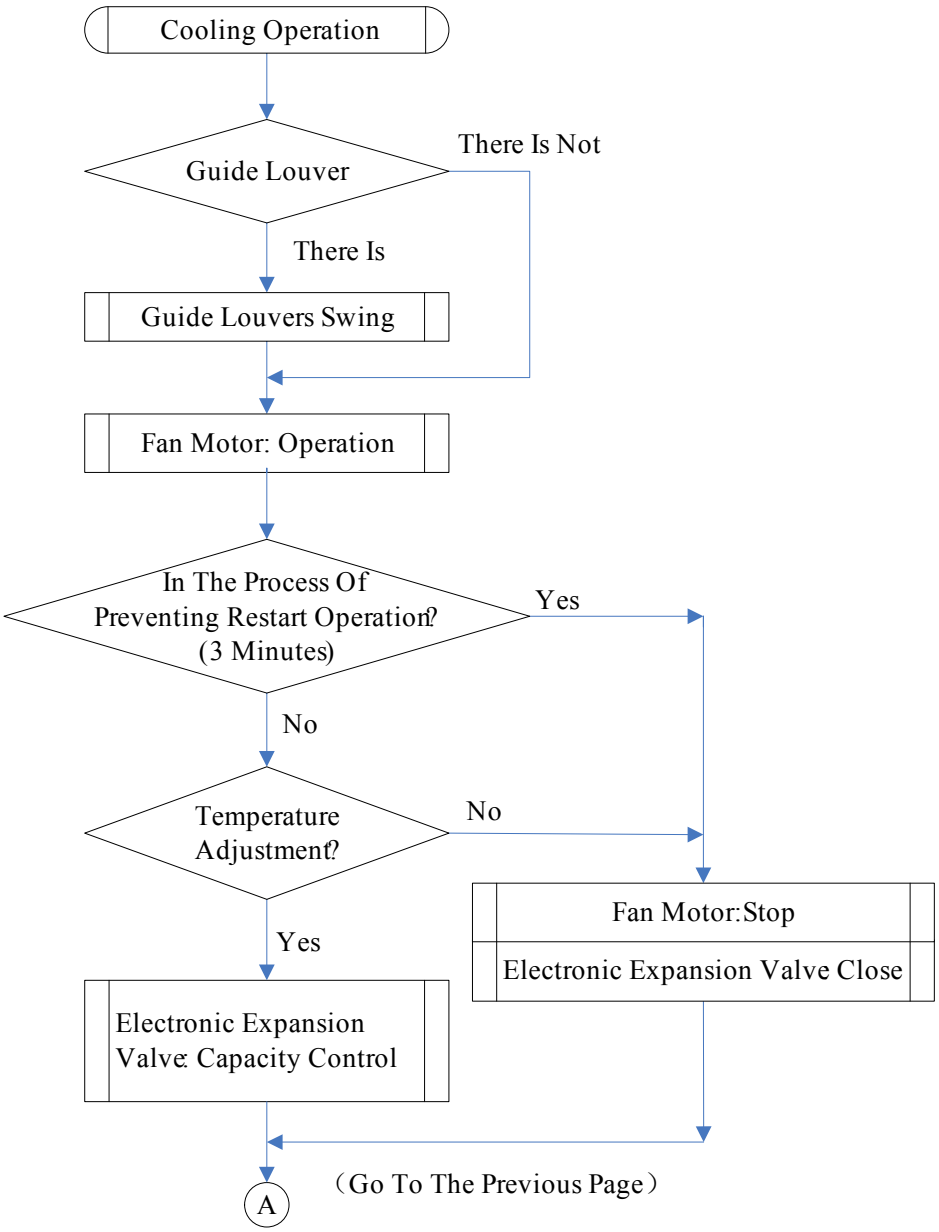
CONTROL

CONTROL

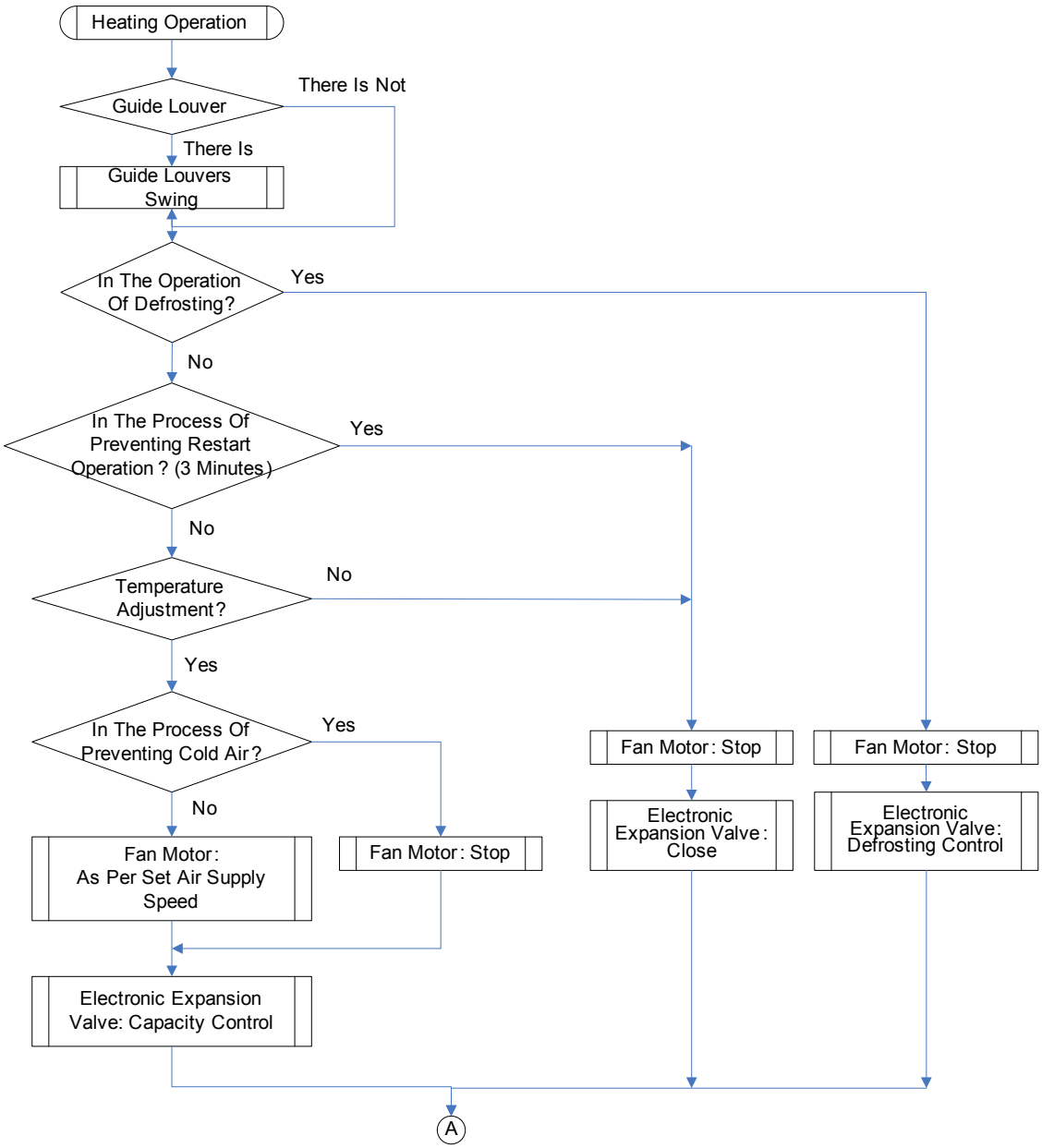
1 OPERATION FLOWCHART



1.1 Cooling/Dehumidfying Operation



1.2 Heating Operation



2 MAIN LOGIC

2.1 Control Function of Outdoor Unit

2.1.1 Cooling Mode

a. Cooling conditions and process:

If the compressor is in stop status and start the unit for cooling operation, when one of the indoor units reaches the cooling operation condition, the unit start cooling operation; in this case, the electronic expansion valve, the outdoor fan and the compressor start operation.

b. Stop in cooling operation

a) Compressor stops

The compressor stops gradually, the outdoor fan stops after 1min.

b) Some of the indoor units reach the stop condition (the compressor does not stop) The compressor operates according to the required frequency. For the indoor unit with no requirement, the corresponding electronic expansion valve is closed to 0P.

c. Cooling mode transfers to heating mode

When the unit transfers to heating mode, the 4-way valve is energized after the compressor runs for 40s. The other disposals are the same as stopping in cooling mode.

d. 4-way valve:

In this mode, the 4-way valve is closed.

e. Outdoor fan control in cooling mode

The outdoor fan starts before 5s of the starting of compressor. The outdoor fan will run in high speed for 3min after starting and then it will run in set speed.

The fan shall run at every speed for at least 80s. (When the quantity of running indoor unit is changed, the unit will enter the control described in 1.3.5.1 and 1.3.5.2); When the compressor stops, the outdoor fan runs at present speed and stops after 1min.

2.1.2 Dry Mode

a. The dry conditions and process are the same as those in cooling mode;

b. The status of 4-way valve: closed;

c. The temperature setting range: 16 ~ 30℃ ;

d. Protection function: the same as those in cooling mode;

e. In dry mode, the maximum value A of the capacity requirement percentage of single unit is 90% of that in cooling mode. The open condition of the electronic expansion valve, outdoor fan and compressor is the same as those in cooling mode.

2.1.3 Heating Mode

a. Heating conditions and process: When one of the indoor units reaches the heating operation condition, the unit starts heating operation.

b. Stop in heating operation:

a) When all the indoor units reach the stop condition, the compressor stops and the outdoor fan stops after 1min;

b) Some of the indoor units reach the stop condition The compressor reduces the frequency immediately and operates according to the required frequency;

c) Heating mode transfers to cooling mode(dry mode), fan mode

The compressor stops;

The outdoor fan stops after 1min;

The status of 4-way valve: energized;

c. Outdoor fan control in heating mode

The outdoor fan starts before 5s of the starting of compressor and then it will run in high speed for 40s; The fan shall run at every speed for at least 80s; When the compressor stops, the outdoor fan stops after 1min.

d. Defrosting function

When the defrosting condition is met, the compressor stops; the electronic expansion valve of all indoor units open in big angle; the outdoor fan stops after the stop of the 4-way valve, meanwhile, the 4-way valve reverses the direction; after the 4-way valve reverses the direction, the compressor starts; then begin to calculate the time of defrosting, the frequency of the compressor rises to reach the defrosting frequency.

e. Oil-returned control in heating mode

a) Oil-returned condition

The whole unit is operating in low frequency for a long time

b) Oil-returned process in heating mode

The indoor unit displays “H1”

c) Oil-returned finished condition in heating mode

The duration reaches 5min

2.1.4 Fan Mode

The compressor, the outdoor fan and the 4-way valve are closed; temperature setting range is 16 ～ 30℃ .

2.2 Protection Function

2.2.1 Mode Conflict Protection of indoor unit

When the setting mode is different of different indoor unit, the unit runs in below status:

a. The mode of the first operating indoor unit is the basic mode, then compare the mode of the other indoor units to see if there is a conflict. Cooling mode (dry mode) is in conflict with heating mode.

b. Fan mode is in conflict with heating mode and the heating mode is the basic mode. No matter which indoor unit operates first, the unit will run in heating mode.

2.2.2 Overload Protection Function

When the tube temperature is a little low, the compressor raises the operation frequency; when the tube temperature is a little high, the compressor frequency is restricted or lows down the operation frequency; when the tube temperature is too high, the compressor protection stops running. If the discharge temperature protection continuously appears for 6 times, the compressor can’t resume running. The compressor can resume running after cutting off the power and then putting through the power. (if the running time of the compressor is longer than 7min, the protection times record will be cleared)

2.2.3 Discharge Protection Function

When the discharge temperature is a little low, the compressor raises the operation frequency; when the discharge temperature is a little high, the compressor frequency is restricted or lows down the operation frequency; when the discharge temperature is too high, the compressor protection stops running. If the discharge temperature protection continuously appears for 6 times, the compressor can’t resume running. The compressor can resume running after cutting off the power and then putting through the power. (if the running time of the compressor is longer than 7min, the protection times record will be cleared)

2.2.4 Communication malfunction

Detection of the quantity of installed indoor units: After 3min of energizing, if the outdoor unit does not receive the communication data of certain indoor unit, the outdoor unit will judge that indoor unit is not installed and will treat it as it is not installed. If the outdoor unit receives the communication data of that indoor unit later, the outdoor unit will treat that unit as it is installed.

2.2.5 Compressor high-pressure protection

a. When the high-pressure switch is detected cut off for 3s continuously, the compressor will enter high-pressure protection as it stops when reaching set temperature. Meanwhile, the outdoor unit will send the signal of “high-pressure protection” to the indoor units;

b. After the appearance of high-pressure protection, when the high-pressure switch is detected closed for 6s continuously twice an hour, the compressor can resume running only after cutting off the power and then putting through the power.

2.2.6 Compressor low-pressure protection

a. Low Pressure Protection for Shutdown

After the compressor stops for five minutes, if it is detected that the low pressure protection switch is opened, then a low pressure protection signal will be send out.

If it is detected continuously for three seconds that the low pressure protection switch is opened after the compressor stops for less than five minutes, then a low pressure protection signal will be send out. However, if the low pressure protection occurs twice in one hour, then it becomes unrecoverable and has to be recovered by powering the outdoor unit again.

b. Low Pressure Protection during the Operation

a) When it is detected continuously for three seconds that the low pressure protection switch is opened, then the whole unit should be shut off and a low pressure protection signal should be sent to the indoor unit.

b) On condition that a low pressure protection error occurs and the whole unit has stopped for more than three minutes and it is detected continuously for six seconds that the low pressure protection switch is closed, then this error can be eliminated. However, if the low pressure protection occurs twice in one hour, then it has to eliminate the error by powering the outdoor unit again.

2.2.7 Compressor overload protection

If the compressor overload switch is detected having movement, the indoor unit will display the corresponding malfunction as it stops when the indoor temperature reaching set temperature. When the compressor stops for more than 3min and the compressor overload switch is reset, the unit will resume operation status automatically. If the protection appears for more than 6 times (if the running time of the compressor is longer than 30min, the protection times record will be cleared), the unit can not resume operation status automatically, but can resume running only after cutting off the power and then putting through the power.

2.2.8 Drive Error

When the system is powered on and starts to run for the first time, let all indoor units on line run under the "Fan" mode, and they will go to the piping test through the preset mode after they has run at the high fan speed for six minutes.

2.2.9 Refrigerant Recovery

The refrigerant can be recovered from either the indoor unit or the outdoor unit.

From the outdoor unit: it is available to recover the refrigerant from the outdoor unit by pressing "SW3"for a long time period.

From the indoor unit: when the unit is powered on and runs under the COOL mode, it is available within five minute to go the refrigerant recovery mode by pressing three times the "LIGHT" button on the wireless controller in three seconds with "F0"displayed.

How to quit the refrigerant recovery:

When the refrigerant recovery has started, it will quit when the "SW3" is pressed down for a long time period or there is a signal from the wireless controller or it has run for ten minutes.

2.2.10 Forcible Defrosting

How to activate this function: when indoor unit runs under the heating mode and at 16℃ , it will activate the forcible defrosting by pressing the "+"and "-" buttons alternately three times in five seconds.

How to quit this function: the function will quit when the mode of indoor units conflicts.

2.2.11 Switchover of the Defrosting Modes

Under the unit is under the "Off" status, if "H1" is not displayed on the wireless controller, then the unit will go to the defrosting mode 1 when it is turned on through the wireless controller.

Under the unit is under the "Off" status, if "H1" is displayed on the wireless controller, the unit will go the defrosting mode 2 when it is turned on through the wireless controller.

Under the unit is under the "Off" status, it is available to switch over the defrosting mode 1 and defrosting mode 2 by pressing the "Mode" and "Blow" buttons simultaneously.

2.3 Control Function of Indoor Unit

2.3.1 Running Mode

1.COOL 2.DRY 3.HEAT 4.AUTO 5 FAN

2.3.2 Basic Functions of the System

a. COOL Mode

Under this mode, the fan and swing function goes as the set conditions, and the set temperature range is 16℃ ~30℃ .

b. DRY Mode

Under this mode, the fan will run at the low speed and the swing function is performed under the set conditions. The set temperature range is 16~30℃ .

c. FAN Mode

Under this mode, only the fan of the indoor unit runs. And if the auto speed is set, the fan will run under the same condition as the COOL mode.

d. HEAT Mode

a) Under this mode, the set temperature rang is 16℃ ~30℃ .

b) The defrosting symbol “H1” will be displayed when the defrosting signal is received from the outdoor unit.

e. AUTO Mode

a) When the ambient temperature is higher than 25℃ , the unit will run as the COOL mode.

b) For the cooling and heating unit, if the ambient temperature is or lower than2 0℃ (72 ℉), the unit will run as the HEAT mode.

c) When the indoor ambient temperature is higher than 20℃ but lower than 25℃ , the unit which starts to work under the AUTO or DRY mode will shift to the FAN mode, while the unit which starts to work under other mode will keep the current running mode.

f. Mode Conflict

When the running modes of the unit which is started just now and unit which has run conflict, the former one will show the error code “E7”.

2.3.3 Other Control

a. Beeper Control

When the controller is powered on or it receives a valid either press button signal or remote control signal, the beeper will utter a warning tone.

b. Auto Speed Control

Under the HEAT mode:

If the ambient temperature is equal or higher than the set temperature, the fan will run at the low speed;

If the ambient temperature minus 3 ℃ is equal or lower than the set temperature, the fan will run at the medium speed;

If the ambient temperature minus 3℃ is lower than the set temperature minus 3℃ , the fan will run at the high speed.

Under the COOL mode:

If the ambient temperature is equal to or lower than the set temperature, the fan will run at the low speed;

If the ambient temperature is between the set temperature and the set temperature minus 3℃ , the fan will run at the medium speed;

If the ambient temperature is higher than the set temperature plus 3℃ , the fan will run at the high speed.

Under the FAN mode:

The fan will run at the medium speed constantly.

Once the fan starts, its speed can not be changed unit it has run for at least 30 seconds at the currently set speed.

c. AUTO Press Button

The whole unit will run under the AUTO mode by pressing this button when the unit is off. In this condition, the fan of the indoor unit will run at the auto speed with the swing function activated. When the unit is on, it will be turned off by pressing this button. This button is unavailable to the floor/ceiling unit.

d. Sleep

a) Under this mode, the proper sleep curve will be adopted in accordance with different set temperatures.

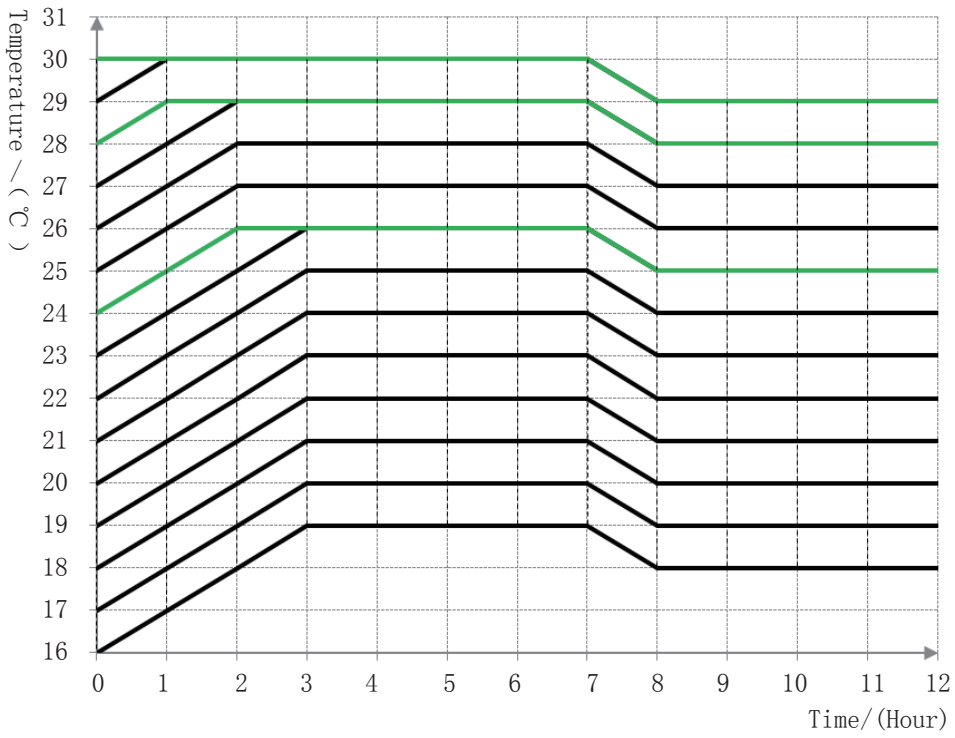
b) Sleep 1

Under the COOL mode or the DRY mode, the temperature will go up by 1℃ after one hour and by another 1℃ after another hour, after that, the temperature will be kept on.

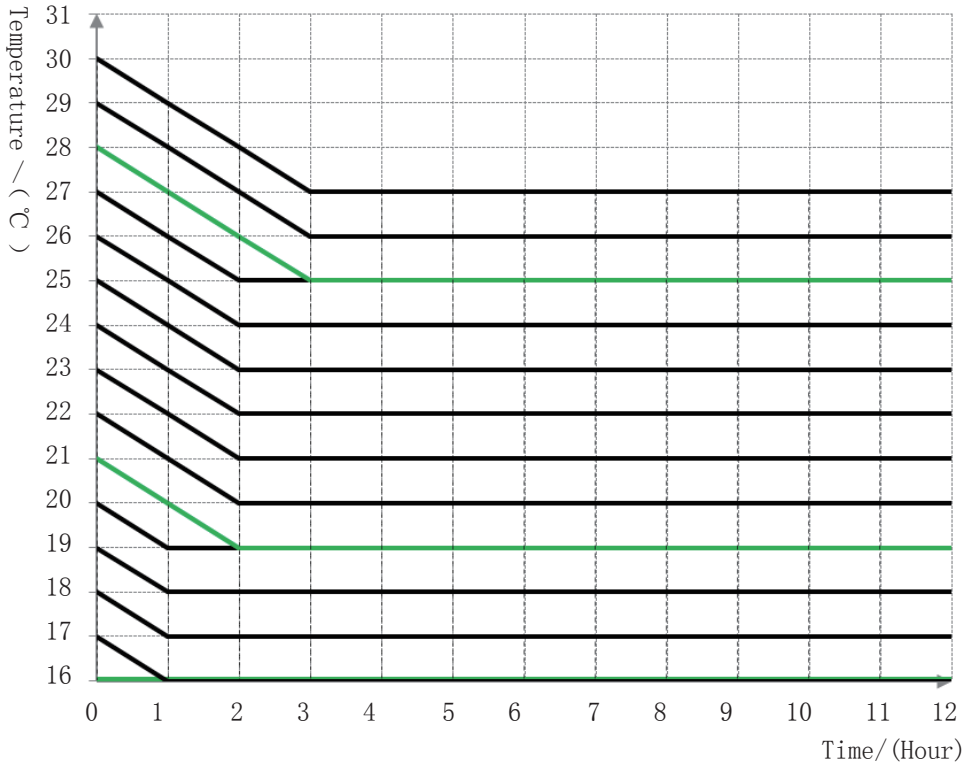
Under the HEAT mode, the temperature will go down by 1℃ after one hour and by another 1℃ after another hour, after that, the temperature will be kept on.

c) Sleep 2

Sleep Curve under the COOL mode



Sleep Curve under the HEAT mode



d) Sleep 3 (Self-Defined Sleep Mode)

How to set the sleep 3 curve:

1)When the sleep 3 mode is selected, press the “Timer” button to go to the setting status with “1 Hour” displayed and the corresponding temperature of the sleep curve set last time displayed at the temperature area.

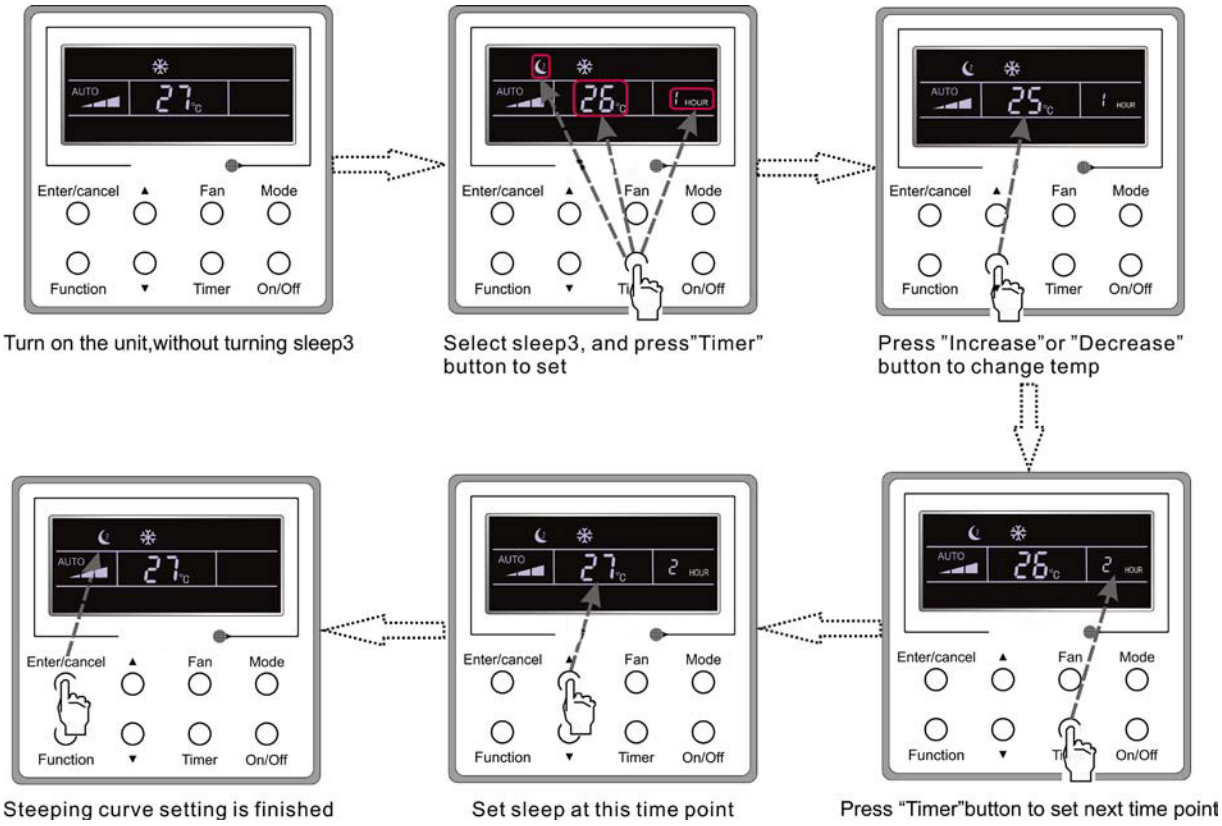
2)Press “▲”and “▼” to change the set temperature.

3)Press the “Timer” button to increase the time by one hour, and the sleep curve temperature set last time will be displayed at the temperature area.

4)Repeat the step 2 and step 3 until the temperature of eight hours has been set.

5)Press “Enter/Cancel” to make a confirmation to this setting.

See the figures below for how to set the sleep 3 curve:



e. Quiet

Quite Function: It is divided into the "Quiet" mode and "Auto Quiet" mode.

a) Under the "Quiet" mode, the low fan speed will be kept and is unchangeable.

b) Under the "Auto Quiet" mode, the fan speed changes in accordance with the difference of the indoor ambient temperature and the set temperature.

f. Timer

a)Timer On

When the unit is powered on but in the idle condition, it is available to set when to start the unit. Then, when the unit starts, it will run as the previously set mod. The set range of the timer is 0.5 ～ 24 hours with a interval of 0.5 hour.

b) Timer Off

When the unit is on, it is available to set when to stop the unit. The set range of timer is 0.5 ～ 24 hours with a interval of 0.5 hour.

g. Memory

a) Memorizing Objects: modes (AUTO, COO, DRY, FAN, HEAT), swing, set temperature, set fan speed, etc.

b) When the indoor unit works without the wired controller, it will resume the working condition as the power failure occurs after it is powered on again. When the indoor unit is with the wired controller, it is available to set the memory function by pressing the corresponding buttons of the wired controller.

c) When the indoor unit works without the wired controller, if the timer is not set for the last remote control instruction, the system will memorize this last instruction and works following it ; if the timer is set, it will be canceled as the power failure occurs and will have to be reset.

d) When the indoor unit works with the wired controller, it will wok as the message sent by the wired controller after it is powered on again.

h. Forcible Defrosting

When the unit is on and runs under the HEAT mode and at 16 ℃ set temperature, the indoor unit will go to the forcible defrosting by pressing the "+"and"-"buttons alternatively on the wireless controller for five seconds and meanwhile a forcible defrosting signal will be sent to the outdoor unit.

When the indoor unit receives a forcible defrosting signal from the outdoor unit, it will quit the forcible defrosting setting and cease to sending the forcible defrosting single to the outdoor unit.

i. Selection of the Indoor Temperature Sensor

a)For the duct type indoor unit: Under the COOL, HEAT, DRY, or FAN mode, the return air temperature sensor is adopted; while under the HEAT mode, it is the receiver temperature sensor.

For the cassette type, floor/ceiling type indoor unit: Under all modes, the return air temperature sensor is adopted.

b) When the duct type, cassette type, or the floor/ceiling type indoor unit works with the wired controller, the ambient temperature sensor can be set in the following four ways:

① 01:The indoor temperature sensor is set for the return air.

② 02:The indoor temperature sensor is set for the wired controller.

③ 03:The indoor temperature sensor is set for the wired controller under the HEAT mode, and for the return air under any other mode.

④ 04:The indoor temperature sensor is set for the return air under the HEAT mode, and for the wired controller under any other mode.

c) Setting of the Ambient Temperature Sensor of the New Screen-Touch Wired Controller

When the unit is off, it is available to go to the debugging status by pressing the "Function" and "Timer" buttons for five seconds, and the corresponding code will be displayed on the temperature area of the wired controller. There are four kinds of codes which can be adjusted through the "▼" /"▲ "button.

The third one is the default code. The setting of the ambient temperature sensor of the wired controller should be memorized.

The "Enter/Cancel" button shall be pressed to confirm and leave the setting. If there is no response to the last button press within 20 seconds, then the system will quit the setting and go to the normal "Off" status but with the setting still saved.

j. Switchover of the Defrosting Mode

On condition that the unit is off, if "H1" is not displayed on the wireless controller, then the unit will go to the setting status of the "Defrosting Mode 1"as it is turned on through the wired controller. Then, once the indoor unit receives this signal, it will soon send it to the outdoor unit. In contract, if "H1"is displayed, the unit will go the setting status of the "Defrosting Mode 2", and the indoor unit also will send this signal to the outdoor unit as soon as it receives it.

On condition that the unit is off, it is available to switch over the "Defrosting Mode 1" and "Defrosting Mode 2" by pressing the "MODE" and "BLOW" buttons simultaneously.

k. Turbo

As soon as the controller receives the "Turbo" instruction, the fan of the indoor unit will run at the extreme high speed and the fan of the outdoor unit will run at high cooling/heating frequency.

l. Blow

Blow Function:It is a function to automatically blow off the moist inside the exchanger of the indoor unit to prevent mould growing after the unit is shut off.

a) On condition that this function is activated, when the "On/Off" press button is operated, the fan of the indoor unit will still run for ten minutes (with the symbol "BLOW" displayed). At this time, the fan will stop as this function is deactivated.

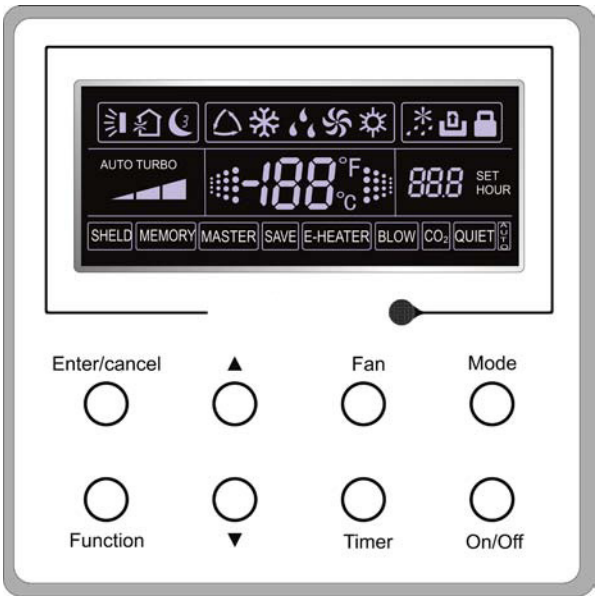
b) This function is unavailable under the AUTO, FAN, and HEAT modes.

3 REMOTE CONTROLLER

3.1 Wired Remote Controller

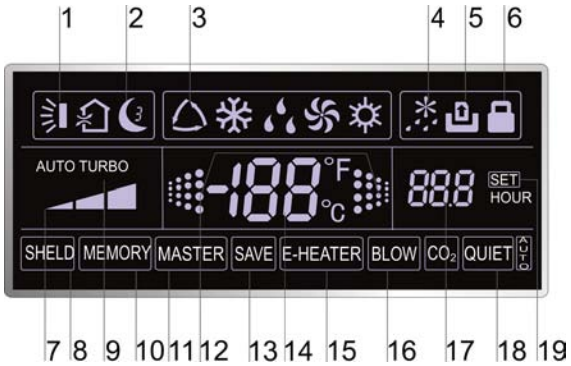
3.1.1 Wired Controller XK19

It is optional for the cassette type, wall-mounted, and floor ceiling indoor units.
Outside View of the Wired Controller



Outside View of the Wired Controller

LCD of the Wired Controller

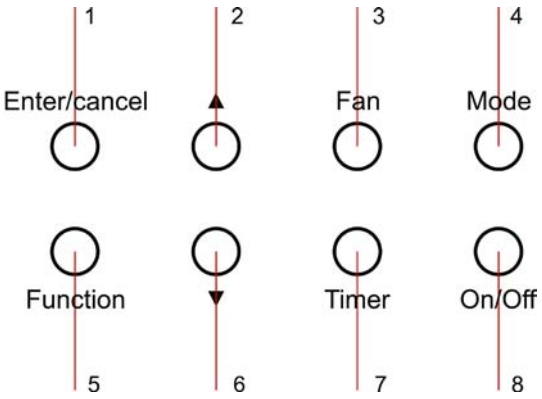


LCD of the Wired Controller

No.	Symbols	Description
1		Swing function.
2		Sleep function (3 types: sleep 1,sleep2 and sleep 3).
3		Running modes of the indoor unit (Cooling, Dry, Fan and Heating).
4		Defrosting function for the outdoor unit.
5		Gate-control function (this function is yet unavailable for this unit).
6		Lock function.
7		High, middle, low or auto fan speed of the indoor unit.
8	SHIELD	Shield functions (buttons, temperature, On/Off, Mode or Save is shielded or Save is shielded by the remote monitor.
9	TURBO	Turbo function.
10	MEMORY	Memory function (The indoor unit resumes the original setting state after power failure and then power recovery).
11	MASTER	Master wired controller (this function is yet unavailable for this unit).
12		It blinks under on state of the unit without operation of any button.
13	SAVE	Energy-saving function.
14		Ambient/preset temperature value.
15	E-HEATER	Electric auxiliary heating function.
16	BLOW	Blow function.
17		Timing value.
18	QUITE	Quiet function (two types: quiet and auto quiet).
19	SET	It will be displayed under the debugging mode.

3.1.2 Buttons

Buttons on the Wired Controller



Buttons on the Wired Controller

Function of the Buttons

No.	Name	Function
1	Enter/cancel	① Function selection and cancellation. ② Press it for 5s to examine the outdoor ambient temperature.
2	▲	① Running temperature setting of the indoor unit, range:16 ～ 30℃ . ② Timer setting, range:0.5-24 hr. ③ Switchover between quiet/auto quiet or among sleep1/sleep2/sleep 3.
6	▼	
3	Fan	Setting of the high/middle/low/auto fan speed.
4	Mode	Setting of the Cooling/Heating/Fan/Dry mode of the indoor unit.
5	Function	Switchover among the functions of Swing/Sleep/Turbo/Save/E-heater/Blow /Quiet etc.
7	Timer	Timer setting.
8	On/Off	Turn on/off the indoor unit.
4+2	▲+Mode	Press them for 5s under off state of the unit to enter/cancel the Memory function (If memory is set, indoor unit after power failure and then power recovery will resume the original setting state.If not, the indoor unit is defaulted to be off after power recovery. Memory off is default before delivery.).
3 +6	Fan+▼	By pressing them at the same time under off state of the unit, will be displayed on the wired controller for the cooling only unit, while will be displayed on the wired controller for the cooling and heating unit.
2 +6	▲+▼	Upon startup of the unit without malfunction or under off state of the unit,press them at the same time for 5s to enter the lock state, in which case, any other buttons won't respond the press. Repress them for 5s to quit this state.

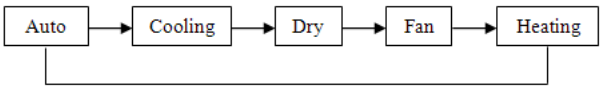
3.1.3 Operation Instructions

◆ **On/Off**

Press On/Off to turn on the unit and turn it off by another press.

◆ **Mode Setting**

Under the "On" state of the unit, press Mode to switch the operation modes as the following sequence: Cooling-Dry-Fan-Heating.



◆ **Temperature Setting**

Press ▲or ▼ to increase/decrease the preset temperature. If press either of them continuously, the temperature will be increased or decreased by 1℃ every 0.5s.

In the Cooling, Dry or Heating mode, the temperature setting range is 16℃～ 30℃ .

In the Fan mode, the setting temperature is fixed at 26℃ .

In the Auto mode, the setting temperature is unadjustable.

◆ **Fan Setting**

Under the "On"/"Off" state of the unit, press Fan and then fan speed of the indoor unit will change circularly.

◆ **Timer Setting**

Under the "On"/"Off" state of the unit, press Timer to set timer off/on.

Timer on setting: press Timer, and then LCD will display "xx.x hour", with "hour" blinking. In this case, press ▲or ▼ to adjust the timing value. Then press Enter/cancel to confirm the setting.

Timer off setting: press Timer, if LCD won't display xx.x hour, and then it means the timer setting is canceled.

Timer range: 0.5-24hr. Every press of ▲or ▼ will make the set time increased or decreased by 0.5hr. If either of them is pressed continuously, the set time will increase/ decrease by 0.5hr every 0.5s.

◆ **Swing Setting**

Swing On: Press Function under on state of the unit to activate the swing function. In this case, will blink. After that, press Enter/cancel to make a confirmation.

Swing Off: When the Swing function is on, press Function to enter the Swing setting interface, with blinking. After that, press Enter/cancel to cancel this function.

Note:

m. Sleep, Save, Turbo, Blow or Quiet setting is the same as the Swing setting.

n. After the setting has been done, it has to press the key "Enter/cancel" to back to the setting status or quit automatically five seconds later.

◆ **Sleep Setting**

Sleep on: Press Function under on state of the unit till the unit enters the Sleep setting interface. Then press ▲or ▼ to switch among Sleep 1, Sleep 2 and Sleep 3. After that, press Enter/cancel to confirm the setting.

Sleep off: When the Sleep function is activated, press Function to enter the Sleep setting interface. After that, press Enter/cancel to can this function.

Sleep off is default after power failure and then power recovery, and the sleep functions is unavailable under the fan mode.

There are three Sleep modes: Sleep 1, Sleep 2 and Sleep 3.

1) Sleep 1

In the Cooling or Dry mode, the temperature will increase by 1℃ after the unit runs under Sleep 1 for 1hr and 1℃ after another 1hr.After that, the unit will run at this temperature.

In the Heating mode, the temperature will decrease by 1 ℃ after the unit runs under Sleep 1 for 1hr and 1 ℃ after another 1hr. After that, the unit will run at this temperature.

1) Sleep 2

In the Cooling mode, the temperature may be set between 16℃ -23℃ , 24℃ - 27℃ or 28℃ - 29℃ or at 30℃ .(Note: The curve is only for reference, the actual temperature is subject to the time point.).

For example: The temperature in the Cooling mode is set at 25℃ . Under the mode of Sleep 2, the temperature will increase by 1℃ every 1hr. After it increases by 2℃ in total, it will keep at 27℃ . 7 hours later, it will decrease by1℃ , i.e. 26℃ .After that, the unit will keep running at 26℃ .

In the Heating mode, the temperature may be set at 16℃ or between 17℃ - 20℃ , 21℃ -27℃ or 28℃ - 30℃ .

For example, the temperature in the Heating mode is set at 22 ℃ .Under the mode of Sleep2, the temperature will decrease by 1℃ every 1hr. After it decreases by 2℃ in total, i.e. 20℃ ,the unit will keep running at 20℃ .

1) Sleep 3

Sleep curve setting under Sleep 3(DIY mode)

Under the mode of Sleep 3, press Timer to enter the Sleep setting. In this case, "1 HOUR" is displayed where the timing value once is displayed and the corresponding temperature with the last Sleep curve setting is displayed where the ambient/preset temperature once in displayed.

Press ▲or ▼ to change the corresponding temperature setting.

Press Timer, time will automatically increase by 1hr, and the corresponding temperature with the last Sleep curve setting is displayed where the ambient/preset temperature once is displayed.

Repeat step 2 and step 3 till 8 HOUR Sleep setting is finished.

Press Enter/cancel to confirm the setting.

Notes:

a. During the above setting, if Function is pressed down or there is not any operation within 5s, sleep curve setting will be canceled.

b. 26℃ is the default Sleep curve temperature before delivery. The wired controller will automatically memorize the Sleep curve after the setting.

◆ **Turbo Setting**

Turbo function: The unit at the high fan speed can realize quick cooling or heating so that the room temperature can quickly approach the setting value.

In the Cooling or Heating mode, press Function till the unit enters the Turbo setting interface and then press Enter/Cancel to confirm the setting.

When the Turbo function is activated, press Function to enter the Turbo setting interface and then press Enter/Cancel to cancel this function.

Notes:

a. When the Turbo function is activated, if the difference between the room temperature and set temperature is at or below 2℃ (detected in successive 1 min.), the Turbo function will be automatically deactivated.

b. Turbo function is unavailable in the Dry and Fan mode. And the Turbo function is off after power failure and then power recovery. If Quiet function is on, Turbo function will be canceled subsequently.

◆ **Save Setting**

Save: Energy saving which will result the air conditioner runs in smaller temperature range is realized by setting lower limited value in the Cooling or Dry mode and upper limited value in the Heating mode.

Save Setting for Cooling:

Under the "On" state and in the Cooling or Dry mode of the unit, press Function to enter the Save setting interface and then press ▲or ▼ to adjust the lower limited value in the Cooling mode. After that, press Enter/Cancel to activate the Save function. The initial lower limited value in the Cooling mode is 26℃ .

When the Save function is activated, press Function to enter the Save setting interface and then press Enter/cancel to cancel this function.

Save Setting for Heating:

Under on state or in the Heating mode of the unit, press Function to enter the Save setting interface and then press ▲or ▼ to adjust upper limited value in the Heating mode. After that, press Enter/Cancel to activate the Save function for heating. The upper initial limited value in the Heating mode is 20℃ .

After the Saving function is activated, press Function to enter the Save setting interface and then press Enter/Cancel to cancel this function.

Notes:

a. If press Function on the Save setting interface or if there is not any operation for 5s after last button press, the Save setting will be canceled automatically by the system, with memorizing the present setting data.

b. When power is on after the power failure, the Save function will be memorized.

◆ **E-heater Setting**

E-heater (auxiliary electric heating function): In the Heating mode, E-heater is allowed to be turned on for improvement of efficiency.

Once the wired controller or the remote controller enters the Heating mode, this function will be turned on automatically.

Press Function in the Heating mode to enter the E-heater setting interface and then press Enter/cancel to cancel this function.

Press Function to enter the E-heater setting interface, if the E-heater function is not activated, and then press Enter/Cancel to turn it on.

◆ **Blow Setting**

Blow function: After the unit is turned off, the water in evaporator of indoor unit will be automatically evaporated to avoid mildew.

In the Cooling or Dry mode, press Function till the unit enters the Blow setting interface and then press Enter/Cancel to active this function.

When the Blow function is activated, press Function to the Blow setting interface and then press Enter/Cancel to cancel this function.

Notes:

a. When the Blow function is activated, if turning off the unit by pressing On/Off or by the remote controller, the indoor fan will run at the low fan speed for 10 min, with “BLOW” displayed on the LCD. While, if the Blow function is deactivated, the indoor fan will be turned off directly.

b. Blow function is unavailable in the Fan or Heating mode.

◆ **Quiet Setting**

Quiet function consists of two kinds: quiet and auto quiet.

Press Function till the unit enters the Quite setting interface, with “Quiet” or “Auto” blinking. In this case, press ▲or ▼ to switch between Quiet and Auto and then press Enter/cancel to make a confirmation.

When the Quiet function is activated, press Function till the unit enters the Quite setting interface, with “Quite” or “Auto” blinking. Then press Enter/cancel to cancel this function.

Notes:

a. When the Quite function is activated, the fan speed is low and un-adjustable.

b. When the Auto Quite function is activated, the unit will run according to the difference between the room temperature and the setting temperature. In this case, the fan speed is adjustable.

Difference between the room temperature and the setting temperature: the fan speed will keep its current state if the temperature difference ≥ 4℃ ; the fan speed will reduce one grade if 2℃≤ the temperature difference ≤ 3℃ ; the fan speed will be at min. grade if the temperature difference ≤ 1℃ .

c. When the Auto Quiet function is on, the fan speed can not be raised but reduced. If the high fan speed is manually adjusted, the function will quit automatically.

d. There is not Auto Quiet function in the Fan or Dry mode. Quiet off is default after power failure and then power recovery.

◆ **Other Functions**

1) Lock

Upon startup of the unit without malfunction or under the “Off” state of the unit, press ▲ and ▼ at the same time for 5s till the wired controller enters the Lock function. In this case, LCD displays 🔒. After that, repress these two buttons at the same time for 5s to quit this function.

Under the Lock state, any other button press won’t get any response.

2) Memory

Memory switchover: Under the “Off” state of the unit, press Mode and ▲ at the same time for 5s to switch memory states between memory on and memory off. When this function is activated, Memory will be displayed. If this function is not set, the unit will be under the “Off” state after power failure and then power recovery.

Memory recovery: If this function has been set for the wired controller, the wired controller after power failure will resume its original running state upon power recovery. Memory contents: On/Off, Mode, set temperature, set fan speed, Save function and Lock function.

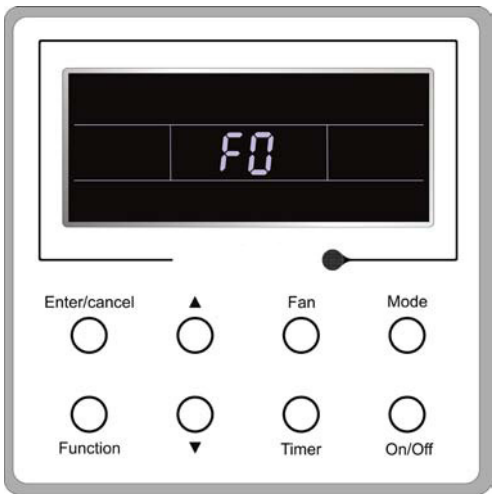
3) Enquiry of the Outdoor Ambient Temperature

Under the “On” or “Off” state of the unit, press Enter/Cancel for 5s, and the outdoor ambient temperature will be displayed after a sound of click. This enquiry state will quit by pressing Function or On/Off or during the temperature adjustment. If there is not any operation for 10s, it will also quit automatically.

3.1.4 Errors

If there is an error occurring during the operation of the system, the error code will be displayed on the LCD. If multi errors occur at the same time, their codes will be displayed circularly.

Note: In event of any error, please turn off the unit and contact the professionally skilled personnel.



Error	Error Code
High pressure protection	E1
Low pressure protection	E3
Discharge protection	E4
Over-current protection	P5
Communication error	E6
Indoor water overflow protection	E9
Mode conflict	E7
Anti-freezing protection	E2
Defrosting or oil returning for heating	H1
Indoor ambient temperature sensor open/short circuit	F1
Evaporator temperature sensor open/short circuit	F2
Indoor unit (liquid valve) refrigerant pipe inlet temperature sensor error	b5
Indoor unit (gas valve) refrigerant pipe outlet temperature sensor error	b7
Condenser coil inlet temperature sensor open/short circuit	A5
Condenser coil midway temperature sensor error	F4
Condenser coil outlet temperature senor open/short circuit	A7
Discharge air temperature sensor error	F5
Outdoor ambient temperature sensor error	F3
Module temperature sensor error	oE
Outdoor unit overall error	oE

3.2 Wireless Remote Controller

Wireless Remote Controller YT1F

Notes:

a. Be sure that there are no obstructions between the receiver and the remote controller;

b. Do not drop or throw the remote controller;

c. Do not let any liquid into the remote controller and expose the remote controller to direct sunlight or any place where is very hot.

d. This is a general use remote controller. If press some button which is not available for the corresponding function, the unit will keep the original running status.

3.2.1Function of Press Buttons:

◆ ON/OFF (⏻)

Press this button to turn on/off the unit. After that, the sleep function will be canceled but the preset time is still remained.

◆ MODE

Auto, Cool, Dry Fan, Heat modes can be selected circularly by pressing this button. Auto mode is the default after power on. Under Auto mode, the temperature will not be displayed. Under Heat mode, the initial value is 28℃ (82 ℉); Under other modes, the initial value is 25℃ (77 ℉).

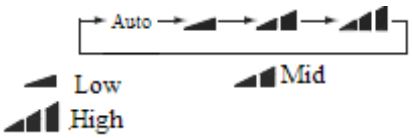
Auto
Cool
Dry
Fan
Heat (Only for the cooling and heating unit)

◆ SLEEP

Sleep On and Sleep Off can be selected by pressing this button. After powered on, the default is Sleep Off. After the unit is turned off, the Sleep function is canceled. When the sleep function is set already, the symbol will be displayed. And at this time, the time of timer can be adjusted. Under Fan and Auto modes, this unction is not available.

◆ FAN

Auto, Low, Middle, or High fan speed can circularly selected by pressing this button. After powered on, the default is Auto speed. Under Dehumidifying mode, only Low fan speed is available.



◆ CLOCK

The clock can be set up by pressing this button, with the symbol displayed and blinking. In such a case, pressing ＋ or － within 5 seconds can adjust the value. If the button is pressed down for more than 2 seconds, the value on ten's place will increase by 1 in every 0.5 seconds. After that, repressing this button and then symbol stops blinking, which indicates the setting is made successfully. After powered on, the default value is 12:00 with displayed. Once the symbol

is displayed, the current time is the Clock value; otherwise it is the Timer value.

◆ LIGHT

Light On and Light Off can be set by pressing this button when the unit is at On or Off status. After powered on, the default is Light On.

◆ TURBO

In Cool or Heat mode, pressing this button can activate or deactivate this function. When this function is on, its symbol will be displayed. Any change of either mode or fan speed will make this function canceled automatically.

◆ BLOW

BlOW On and BLOW Off can be set by pressing this button. In Cool and Dehumidifying modes, press this button to activate this function and then "BLOW" will be displayed. After that, it can be canceled by repressing this button. After powered on, the default is Blow Off. If the ON/OFF button is operated or the unit is switched to the Cool or Dehumidifying mode, it will keep its original status. When the unit is turned off, Only Blow Off is available. Under Auto, Fan or Heat mode, this function is unavailable.

◆ －

The preset temperature can be decreased by pressing this button. If the button is pressed down for more than 2 seconds, the temperature will be decreased quickly until it is released, with ℃ (℉) displayed al the time. Under Auto mode, the temperature adjustment is unavailable.

◆ ＋

The preset temperature can be increased by pressing this button. If the button is pressed down for more than 2 seconds, the temperature will be increased quickly until it is released, with ℃ (℉) displayed all the time. Under Auto mode, the temperature adjustment is unavailable. The setting range is 16-30 ℃ or 61-86 ℉

◆ TEMP

It can be decided by pressing this button which temperature will be displayed, indoor set temperature, or indoor ambient temperature. When the indoor unit is powered on, the indoor set temperature will be displayed, while if the status is changed to , the indoor ambient temperature will be displayed. However, the indoor set temperature will be displayed again when the controller receives other remote controls signals. Without setting this function, the default is the indoor set temperature.

◆ SWING UP/DOWN ( )

The swing angle which circularly changes as below can be selected by pressing this button:

This kind of remoter controller is universal. And the three swing statuses of are the same as that of .

If the swing function is deactivated when the air guide louver is swing up and down, it will stop at the current position.

indicates that the air guide louver swings up and down among all five positions.

◆ AIR ( )

AIR ON or Air OFF can be selected by pressing this button.

◆ TIMER ON

"ON" will be displayed and blink for 5 seconds by pressing this button, and soon adjust the time by pressing ＋ or － within 5 seconds. Each press will make the time increased or decreased by 1 minute. If the button is pressed down for more than 2 seconds, the time will be changed quickly in such a way: firstly the value on the one's place is changed and then is the value on the ten's place. Once Timer ON has been set already, it can be canceled by repressing it. Before the setting, please adjust the CLOCK to the current actual time.

◆ TIMER OFF

TIME OFF can be activated by pressing this button, with "OFF" blinking. The method of setting is the same as that for TIMER ON.

◆ HEALTH ( )

This function can be activated or deactivated by pressing this button. After the unit is turned on, the default is HEALTH ON.

◆ I FEEL

This function can be activated by pressing this button and canceled by another press. When this function is on, the I FEEL information will be sent out in 200ms after each operation on the controller and the remote controller will send the temperature information to the main controller every 10 minutes.

3.2.2 Guide for General Operation

1) After powered on, press ON/OFF and then the unit will start to run. (Note: when powered off, the guide louver of

the main unit will close automatically).

2) Press MODE to select the desired running mode.

3) Press ＋ or － to set the desired temperature (it is unnecessary to set the temperature under the AUTO mode.)

4) Press FAN to set the fan speed, AUTO, LOW, MID, or HIGH.

5) Press to select the swing angle.

3.2.3 Guide for Optional Operation

◆ About BLOW

This function indicates that moisture in the evaporator of the indoor unit will be dried after the unit is stopped to avoid mould.

a. BLOW ON: When press the ON/OFF button to turn off the unit, the indoor fan will continue running for about another 10 minutes at the low speed. In this case, the indoor fan can be stopped directly by pressing the button BLOW.

b. BLOW OFF: When press the ON/OFF button to turn off the unit, the whole unit will be stopped completely.

◆ About AFTERHEAT BLOW

Under the Heat mode or Auto Heat mode, if the unit is turned off, the compressor and outdoor fan will stop running immediately and the upper and lower guide board will rotate to the horizontal position, while the indoor fan will still run at the low fan speed. Then, 10 seconds later, the unit will stop completely.

◆ About AUTO RUN

When AUTO RUN is selected, the setting temperature will not be displayed on the LCD and the unit will choose the suitable running mode automatically in accordance with the room temperature.

◆ About TURBO

If this function is activated, the unit will run at super-high fan speed to cool or heat quickly so that the ambient temperature will approaches the preset temperature as soon as possible.

INSTALLATION

INSTALLATION

1 PRECAUTIONS FOR INSTALLATION

1.1 Precautions for Installation

Before installation, please ensure if the installing site, power ratings, possible operating range (pipe distance, height difference between indoor and outdoor unit, power voltage) and installing space are correct and suitable. The outdoor unit is general to all models according to its power.

◆ To ensure correct installation, please make sure to read the Safety Considerations thoroughly before starting the installation works.

◆ The considerations stated below are classified into ⚠WARNING and ⚠CAUTION. Those that might cause death or severe injury in case of wrong installation are identified in ⚠WARNING. However, those that are stated in ⚠ CAUTION may also cause severe accidents sometimes. Therefore, both of them relate to important safety considerations and must be strictly followed..

◆ After completing the installation and test run and confirming that all are normal, please introduce to the client on how to use and repair the machine according to the Operating Instructions. Besides, please deliver the considerations herein to the clients together with the Operating Instructions, and ask them to keep properly.

⚠WARNING!

◆ The installation shall be performed by the vendor or professional dealer from which you buy the machine. If you install by yourself, any improper installation might cause water leakage, electric shock or fire accident.

◆ The installation shall be done correctly according to installation instructions. Improper installation may cause water leakage, electric shock or fire.

◆ To install a large air-conditioning system in a small room, please make sure to take measures to prevent that the refrigerant will not exceed the limit concentration in case of leakage. For the measures to prevent the refrigerant from exceeding the limit concentration, please consult your dealer. If no proper measures, it might cause human suffocation in case of refrigerant leakage.

◆ Please install at a position that is strong enough to support the weight of machine. If the installing position is of low strength, the machine may drop down and thus cause human injury.

◆ Please carry out installation in accordance with the rules for preventing the typhoon or earthquake. The machine may tip over if the installation does not comply with the requirements.

◆ The electrical cabling shall be carried out by qualified electricians in accordance with the Safety Code for Electrical Equipment, relevant local rules and the installation instructions. Make sure to use the special-purpose circuit. If the power circuit capacity is low or the construction is improper, it might cause electric shock or fire accidents.

◆ Please use suitable cables and connect them securely. Please fix the terminal joints securely. The terminal connection shall not be affected due to any external force applied onto the cable. Improper connection and fixing may cause heating and fire accidents.

◆ Keep the cables in correct shape and prevent them from protruding upward. Please protect them securely with repair board. Improper installation may cause heating and fire accidents.

◆ When erecting or relocating the air conditioner, do not let any air enter into cooling circulation system except the specified refrigerant. If any air is mixed, abnormal high pressure will occur in the cooling circulation system, thus causing crack or human injury accidents.

◆ During installation, please always use the attached parts or designated parts. Failure to use the designated parts may cause water leakage, electric shock, fire or refrigerant leakage.

⚠CAUTION:

◆ Please earth securely. Do not connect the earth wires to gas pipe, water pipe, lightning rod or telephone line. Improper earthling might cause electric shock.

◆ Leakage circuit breaker must be installed at some place. No installation of leakage circuit breaker might cause electric shock.

◆ Do not install at a place where inflammable gas might leak. Gas leakage and despot around the machine might cause fire accidents.

◆ To ensure correct drainage of water, the drainage pipe shall be installed according to the installation instructions. Also the heat insulation shall be provided to avoid condensing. Improper installation of the pipe might result in water leakage and lead to possible wetting of the articles in the room.

1.2 Key Points of Installation

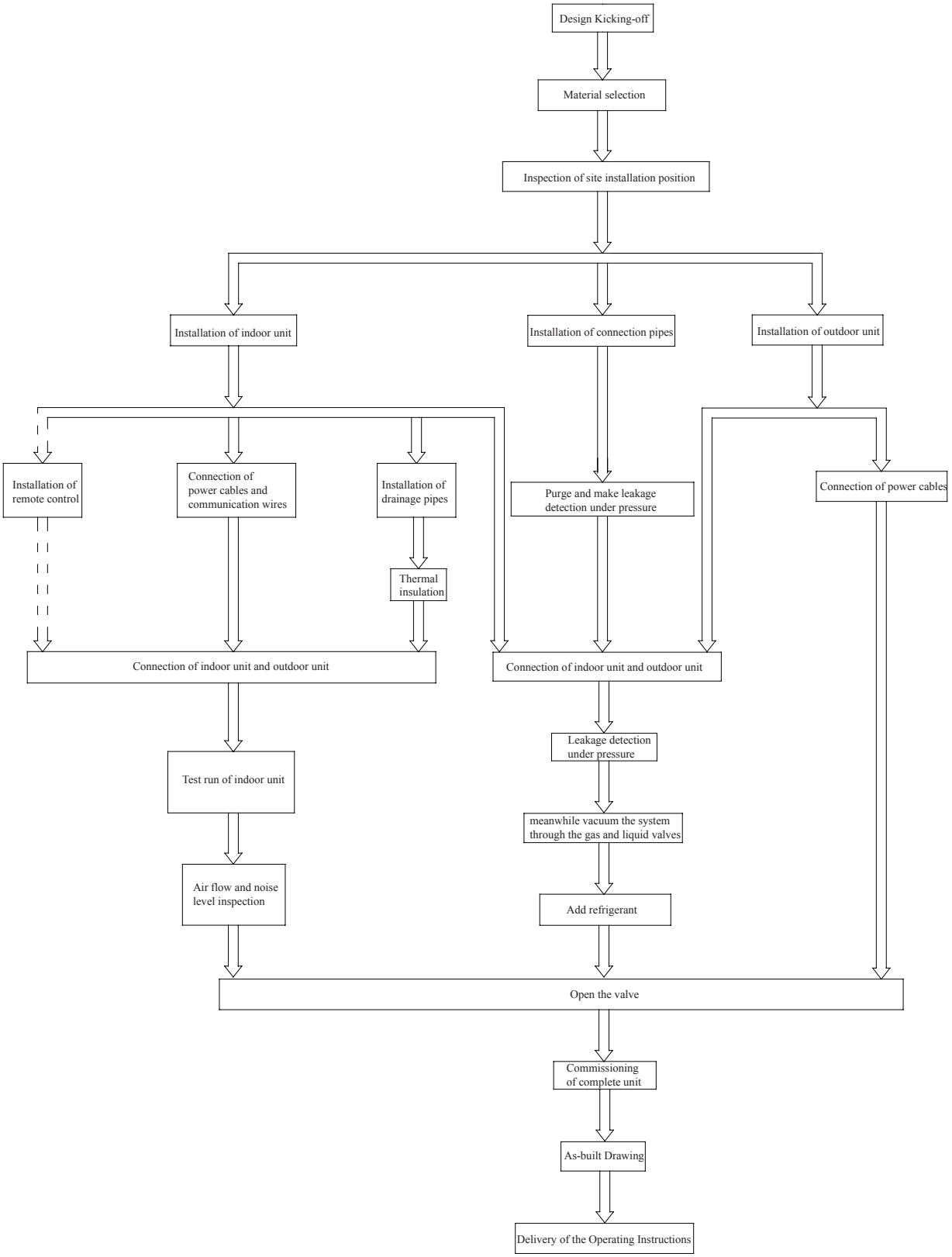
<table>
<tr><th colspan="3">Installation Procedures</th><th>Description and Acceptance Criteria</th></tr>
<tr><td colspan="3">Material Selection and Equipment Inspection</td><td>The materials specified on the engineering drawing shall be purchased as specified (e.g. copper tube, thermal insulation tube, PVC pipe, power cables, air switch, etc).
The materials not specified on the engineering drawing shall be purchased according to the actual quantity of works (e.g. hanger frame, cable duct, etc).
Check if the outdoor unit, indoor unit, communication wires and accessories are complete.</td></tr>
<tr><td rowspan="7">Installation of indoor unit</td><td rowspan="2">Communication wire</td><td>Connection</td><td>The power cables shall be separated from communication wires at a least distance of 10cm.
To avoid breaking the communication wires, please do not use strong force.
For multiple units, please mark them properly.
Switch on indoor and outdoor unit, and ensure there is no display of “Communication Wire Error E6”.</td></tr>
<tr><td>Address dial code</td><td>Each indoor unit under the same system has a unique address dial code.
The wired controller and its corresponding indoor unit have the same address dial code.</td></tr>
<tr><td colspan="2">Remote Control</td><td>Select the remote control mode.
The centralized controller and communication module shall be installed free from the source of interference.</td></tr>
<tr><td colspan="2">Power cord</td><td>The power cable must meet the specifications.
The indoor units under the same system must be arranged under unified power supply.</td></tr>
<tr><td rowspan="2">Drainage Pipe</td><td>Installation</td><td>The PVC pipes must meet the specifications.
A specific gradient must be provided along the water flow direction.
Carry out water detection after installation.
Carry out thermal insulation to the drainage pipe only after the water detection is accepted.</td></tr>
<tr><td>Thermal insulation</td><td>The thermal insulation tube must meet the specifications.
Seal between the thermal insulation pipes to avoid air entry.</td></tr>
<tr><td colspan="2">Installation of Air Duct (when with high static pressure duct-type unit)</td><td>Design the length of air duct according to static pressure;
The air inlet shall be optimally designed to avoid too small size</td></tr>
<tr><td rowspan="3">Installation of connection pipes</td><td colspan="2">Welding</td><td>The copper tube must meet the specifications.
Ensure it is dry and clean inside the tube.
Make sure to charge nitrogen as required for protection when welding the tubes.
Please keep to the welding process and ensure the system free of leakage.
Add a dual-way filter on liquid pipe side
For multiple systems, please mark them properly.
Carry out leakage detection under pressure after welding.</td></tr>
<tr><td colspan="2">Purge and make leakage detection under pressure</td><td>Purge the system clean.
Keep the pressure for 24 hours
Except for the influence by temperature, it is deemed acceptable if pressure drop is within 0.02MPa. (With the temperature change by 1℃, the pressure will change by approx. 0.01MPa)</td></tr>
<tr><td colspan="2">Thermal insulation</td><td>The thermal insulation tube must meet the specifications.
Seal between the thermal insulation pipes to avoid air entry.</td></tr>
<tr><td colspan="3">Installation of outdoor unit</td><td>Select the installing position correctly.
Build the foundation according to the anchor bolt position and the dimension of outdoor unit
Build the damping device properly.
Avoid sharp knock when handling the outdoor unit. The inclination angle shall not be higher than 15°.</td></tr>
<tr><td colspan="3">Connection of indoor unit and outdoor unit</td><td>Tighten the nuts.
Provide proper protection to the outdoor connection pipe, communication wires and power supply.</td></tr>
<tr><td colspan="3">Leakage detection under pressure</td><td>Keep the pressure for 24 hours. Except for the influence by temperature, it is deemed acceptable if pressure drop is within 0.02MPa. (With the temperature change by 1 ℃, the pressure will change by approx. 0.01MPa).</td></tr>
<tr><td colspan="3">Vacuuming</td><td>Establish vacuum simultaneously in the gas pipe and liquid pipe;
The vacuuming time shall be long enough.
Put still for 1 hour after vacuuming. It is deemed acceptable if the pressure will not rise.</td></tr>
<tr><td colspan="3">Add refrigerant</td><td>Add refrigerant according to the volume as specified on the engineering drawing.</td></tr>
<tr><td colspan="3">Open the valve of outdoor unit</td><td></td></tr>
<tr><td colspan="3">Commissioning of complete unit</td><td></td></tr>
</table>

Remarks:

a. Described above are general working procedures. The procedures might vary with the site conditions.

b. For detailed installation rules, please see the description in each chapter.

2 FLOW CHART OF INSTALLATION


Design Kicking-off
Material selection
Inspection of site installation position
Installation of indoor unit
Installation of connection pipes
Installation of outdoor unit
Installation of remote control
Connection of power cables and communication wires
Installation of drainage pipes
Purge and make leakage detection under pressure
Connection of power cables
Thermal insulation
Connection of indoor unit and outdoor unit
Connection of indoor unit and outdoor unit
Leakage detection under pressure
Test run of indoor unit
meanwhile vacuum the system through the gas and liquid valves
Air flow and noise level inspection
Add refrigerant
Open the valve
Commissioning of complete unit
As-built Drawing
Delivery of the Operating Instructions

3 OUTDOOR UNIT INSTALLATION

3.1 Before Installation

◆ Check if there is any damage to the unit when receive and unpack the unit, and check if the compressor runs reversely, if the grease oil and refrigerant leak, and if all parts are completely prepared. If there is any damage on the surface or the inner side, please inform the shipping company or the equipment manufacturer in the written form promptly.

◆ Check if the model, specs and quantity of the unit are consistent with the contact after receive the unit.

3.2 Installation Site

◆ The unit may be installed on balcony, roof, special platform or any other position easy to install and able to support the weight.

◆ Select the place with good ventilation, where the exhaust is smooth and will not be circulated. Meanwhile, the exhaust from the unit shall not affect the neighbors.

◆ The air discharged from the unit will not flow back, and there shall be adequate service space around the machine.

◆ Around the unit there shall be no strong heat source or exhaust port of other equipment, nor any strong hot steam or inflammable gas.

◆ When several units are to be installed, adequate suction space shall be ensured to avoid short-circuit circulation.

◆ Install at a place that will not be affected by rainstorm in winter.

◆ Install at a place where there is no obstruction close to the air inlet or outlet.

◆ Around the machine body, drainage channel shall be provided for discharge of cold or warm water.

◆ The indoor connection pipe is easy to connect outdoors.

◆ The indoor and outdoor units shall be installed to minimize the length and bends of refrigerant pipe.

◆ Install close to power socket for easy connection of the cables.

◆ Open space required around the unit.

◆ Fasten the machine onto the supporting legs and base with M12 screw combination.

3.3 Caution for Installation

The following rules should be followed when the installation location is being considered so as to let the unit run well enough.

◆ The discharged air from the outdoor unit won't return back and enough space should be left for maintenance around the unit.

◆ The installation location should be in good condition so that the unit is able to take in and discharge enough air. Besides, make sure there is no obstacle at the air inlet/outlet of the unit. If there is, remove it.

◆ The unit must be installed where it is secure enough to support the weight of the unit and capable of reducing to some extent noise and vibration to make sure they do not bother your neighbors.

◆ The designated lifting hole must be used for lifting the unit and protect the unit carefully during lifting to prevent damaging the mental sheet which would result in rusting in future.

◆ The unit should be installed where there is as little as direct sunlight.

◆ The unit must be installed where the rain water and defrosting water can be drained.

◆ The unit must be installed where the unit won't be covered by the snow and won't be affected by rubbish and oil fog.

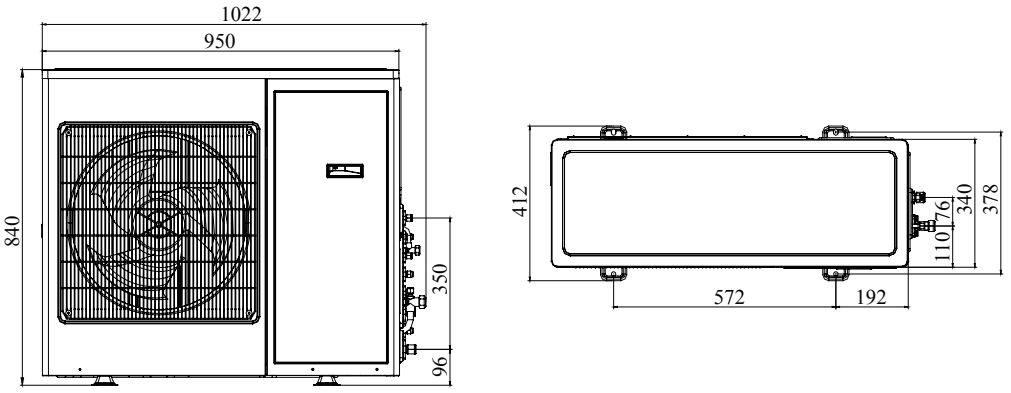
◆ Rubber or spring shock absorbers should be used during the installation of the outdoor unit to meet the noise and vibration requirements.

◆ The installation dimensions should meet the requirement covered in this manual and the outdoor unit must be fixed securely.

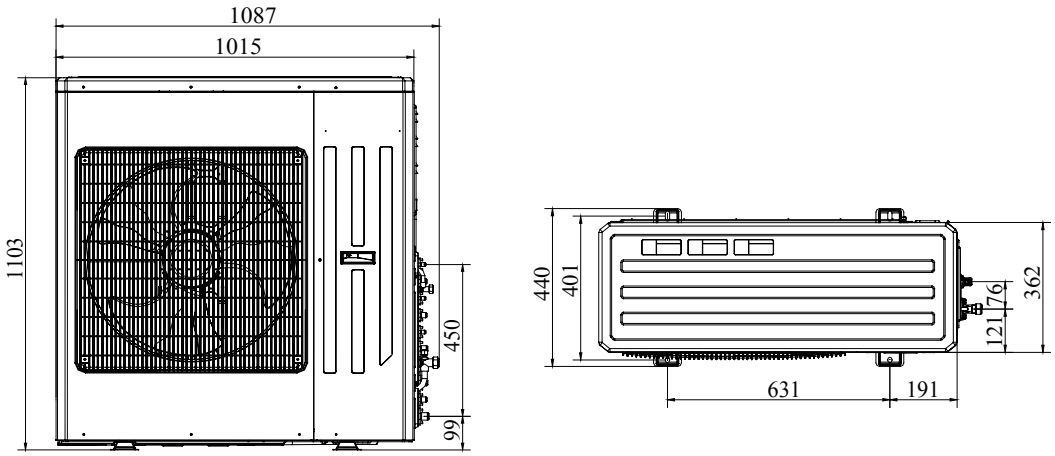
◆ The installation should be carried out by the professionally skilled personnel.

3.4 Dimension Data

The following figure is applicable to the Outdoor units of : MC-E36AI

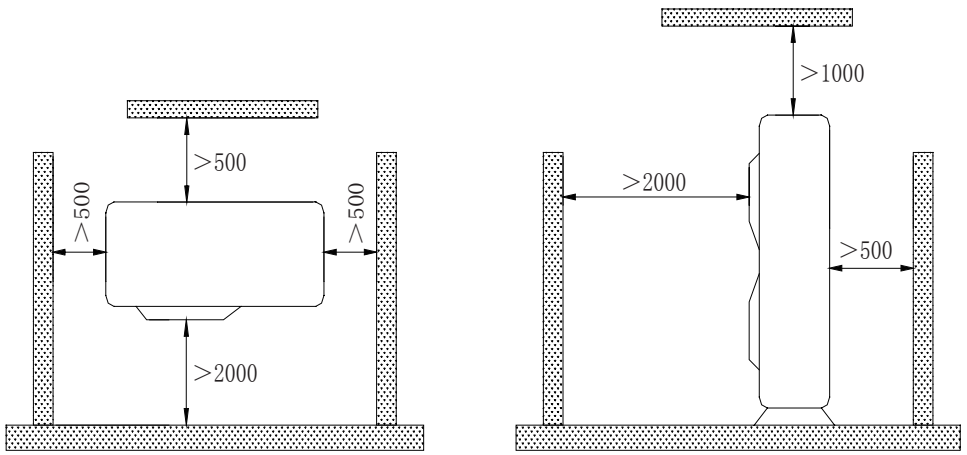


The following figure is applicable to the Outdoor units of :MC-E42AI



3.5 Installation Clearance Data

Installation Space Requirements of the Outdoor Unit



4 INDOOR UNIT INSTALLATION

4.1 Installation of Duct Type

4.1.1 Before Installation

Check if there is any damage to the indoor unit, and the wireless controller and other part and components are prepared completely.

4.1.2 Installation Site

● The selection of the installation place of the air conditioner unit

> The installation must accord with the national and local safe criterion.
> Since the quality of installation would affect the operation directly, user should contact the seller and have the conditioner installed and tested by the professional install personnel according to the install instruction instead of install by himself/herself.
> Only connect the power after all the installation works are finished.

● The selection of the installation place of the indoor unit

◆ Prevent direct sun burn.

◆ Make sure that the top steeve, ceiling, and the structure of the construction etc. is strong enough to bear the weight of the unit.

◆ The drainage pipe is easy to drain.

◆ The air flow is not blocked at the outlet and intake vents.

◆ The connecting pipe indoor and outdoor can by lead to outside conveniently.

◆ The unit cannot be installed in the place where stored the flammability, easy exploded thing or the place where would have leakage of flammability and exploded gas.

◆ The unit cannot be installed in the place where has the corrupt gas and serious dust, saline fog, lampblack and huge humidity.

⚠ Note**:**

The air conditioner unit installed in the following place may have malfunction, if the malfunction cannot prevent, please contact supplier

a. The place with greasy all around;

b. The seashore place with salinity and alkali;

c. The place with vulcanized gas(such as vulcanized hot spring);

d. The place with high frequency equipment (such as wireless equipment, electric welding machine and medical treatment equipment);

e. The place with special environment.

4.1.3 Caution for Installation

◆ Ensure the hanger is strong enough to withstand the weight of the unit.

◆ The drainage of the drain pipe is easy.

◆ No obstacle is in the inlet/outlet and the air circulation is in good condition.

◆ Ensure the installation space is left for the access to maintenance.

◆ It should be far away from where there is heat source, leakage of inflammable, explosive substances, or smog.

◆ It is the ceiling type unit (concealed in the ceiling).

◆ The power cords and connection lines of the indoor and outdoor units must be at least 1m away from the TV set or radio to avoid the image interference and noise (even if 1m is kept, the noise may be produced due to the strong electric wave).

4.1.4 Dimension Data

Note: the unit in the followings figures is mm, unless otherwise specified.

Applicable to DUCT UNITS

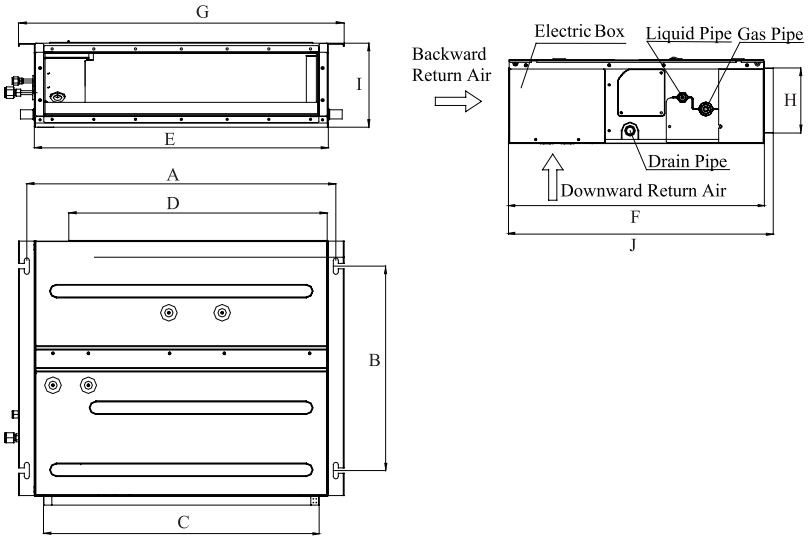
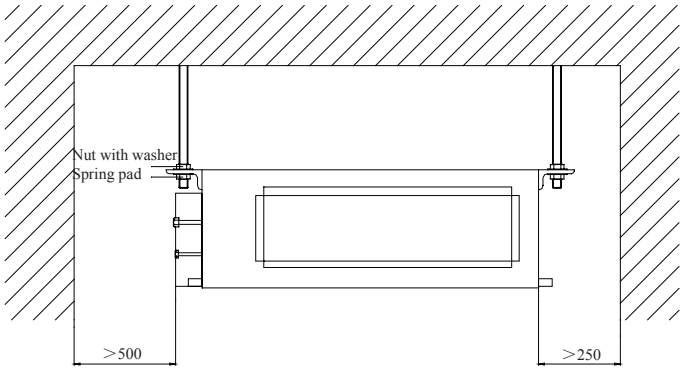


Table Outline Dimensions:

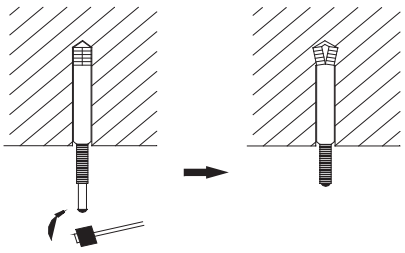
Item / Model	A	B	C	D	E	F	G	H	I	J
MC-D09AI	742	491	662	620	700	615	782	156	200	635
MC-D12AI										
MC-D18AI	942	491	862	820	900	615	982	156	200	635
MC-D21AI	1142	491	1062	1020	1100	615	1182	156	200	635
MC-D24AI										

4.1.5 Installation Clearance Data

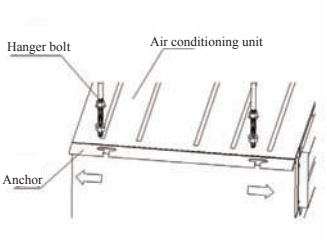


a. Installation of the Indoor Unit

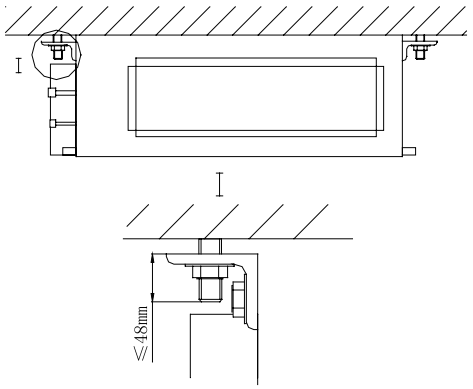
Insert the M10 expansion bolt into the hole, and then knock the nail into the bolt. Refer to the Outline Dimension Drawings of the Indoor Unit for the distance between holes and see Fig.3 for the installation of the expansion bolt.



Install the hanger on the indoor unit:



Install the indoor unit on the ceiling:



⚠**CAUTION**:

a. Prior to the installation, please make a good preparation for all piping (refrigerant pipe, drain pipe) and wiring (wires of the wired controller, wires between the indoor and outdoor unit) of the indoor unit to make the further installation much easier.

b. If there is an opening in the ceiling, it is better to reinforce it to keep it flat and prevent it vibrating. Consult the user and builder for more details.

c. If the strength of the ceiling is not strong enough, a beam made of angle iron can be used and then fix the unit on it.

d. If the indoor unit is not installed in the air conditioning area, please use sponge around the unit to prevent condensing. The thickness of the sponge depends on the actual installation environment.

4.1.6 Horizontality Check of the Indoor Unit

After the installation of the indoor unit, its horizontality must be checked to make sure the unit keep horizontal fore and aft and keep an inclination of 5° toward the drain pipe right and left.

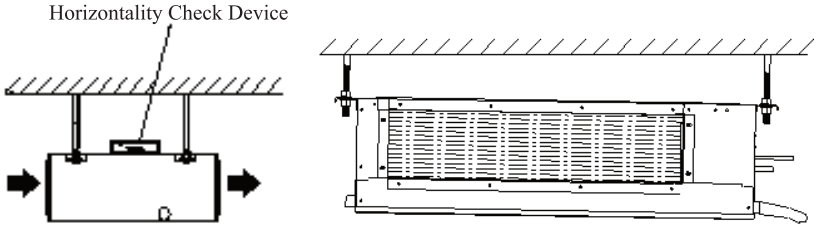
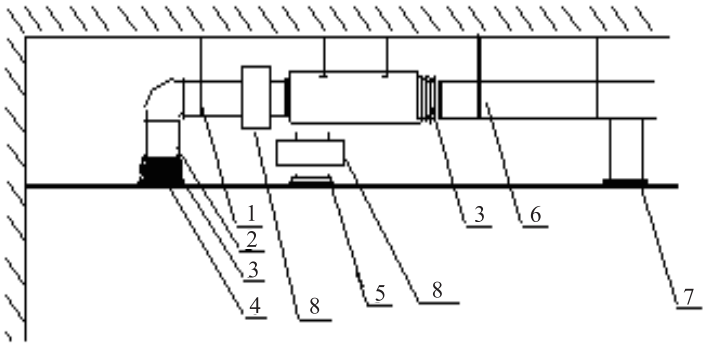


Fig.6

4.1.7 Installation of the Air Supply Duct

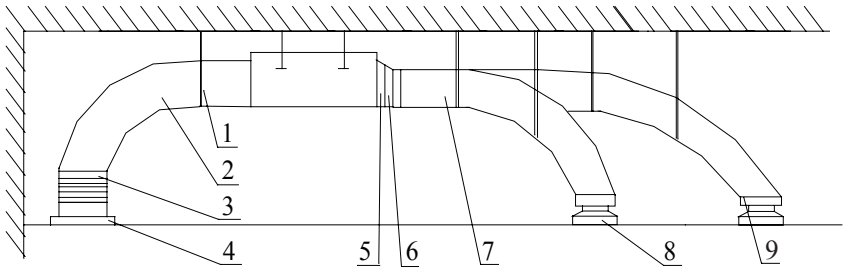
a. Installation of the Rectangular Air Supply Duct



Table

No.	Name	No.	Name
1	Hanger	5	Filter Screen
2	Return Air Duct	6	Main Air Supply Duct
3	Canvas Duct	7	Air Supply Outlet
4	Return Air Inlet	8	Plenum Box

b. Installation of the Round Air Supply Duct



Table

No.	Name	**No.**	Name
1	Hanger	**6**	Transition Duct
2	Return Air Duct	**7**	Air Supply Duct
3	Canvas Duct	**8**	Diffuser
4	Return Air Louver	**9**	Diffuser Joint
5	Air Supply Outlet		

c. Installation Steps of the Round Air Supply Duct

1) Preinstall the outlet of the round duct on the transition duct and then fix it by the self-tapping screw.

2) Place the transition duct to the air outlet of the unit and fix it with rivet.

3) Connect the outlet to the duct and then tighten them with tape. Other installation details are not covered herein.

⚠**CUATION**:

a. The maximum length of the duct means the maximum length of the air supply duct plus the maximum length of the return air duct.

b. For the unit with the auxiliary electric heating function, if the round duct is to be adopted, then the straight length of the transition duct can not be less than 200mm.

c. The duct is either rectangular or round and connected with the air inlet/outlet of the indoor unit. Among all air supply outlets, at least one should be kept open. As for the round duct, it needs a transition duct of which the size should match with the air supply outlet of the unit. After the fitting of the transition duct, it is the turn of the round duct, which is better to be kept 10 meters far away from the corresponding diffuser. The standard accessories supplied by SINCLAIR is the transition duct 200mm long and round air outlet φ200, however, those of other specifications can be purchased.

4.2 Installation of Cassette Type

4.2.1 Before Installation

Check if there is any damage to the indoor unit, and the wireless controller and other part and components are prepared completely.

4.2.2 Installation Site

Select install location of the indoor unit

a. Obstruct should put away from the intake or outlet vent of the indoor unit so that the airflow can be blown though all the room.

b. Make sure that the installation had accord with the requirement of the schematic diagram of installation spaces.

c. Select the place where can stand 4 times of the weight of the indoor unit and would not increase the operating noise and oscillate.

d. The horizontally of the installation place should be guaranteed.

e. Select the place where easy drain condensated coagulated water, and easy connect with outdoor unit.

f. Make sure that there are enough space for care and maintenance. Make sure that the weight between the indoor unit and ground is above 1800mm.

g. When installing the steeve bolt, check if the install place can stand the weight 4 times of the unit's. If not, reinforce before installation. (Refer to the install cardboard and find where should be reinforced)

⚠ **Note!**

There will be lots of lampblack and dust stick on the acentric, heat exchanger and water pump in dining room and kitchen, which would reduce the capacity of heat exchanger, lead water leakage and abnormal operation of the water pump.

The following treatment should be taken under this circumstance:

a. Ensure that the smoke trap above cooker has enough capacity to obviate lampblack to prevent the indraft of the lampblack by the air conditioner.

b. Keep the air conditioner far from the kitchen so that the lampblack would not be indraft by the air conditioner.

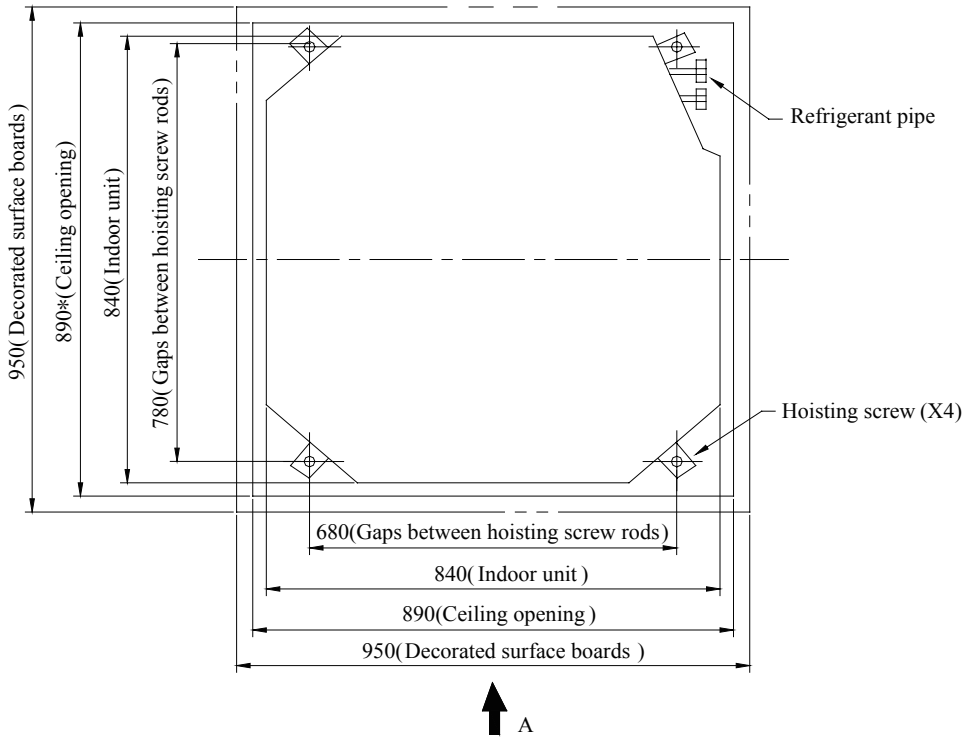
★ **Important notice:**

◆ To guarantee the good performance, the unit must be installed by professional personnel according with this instruction.

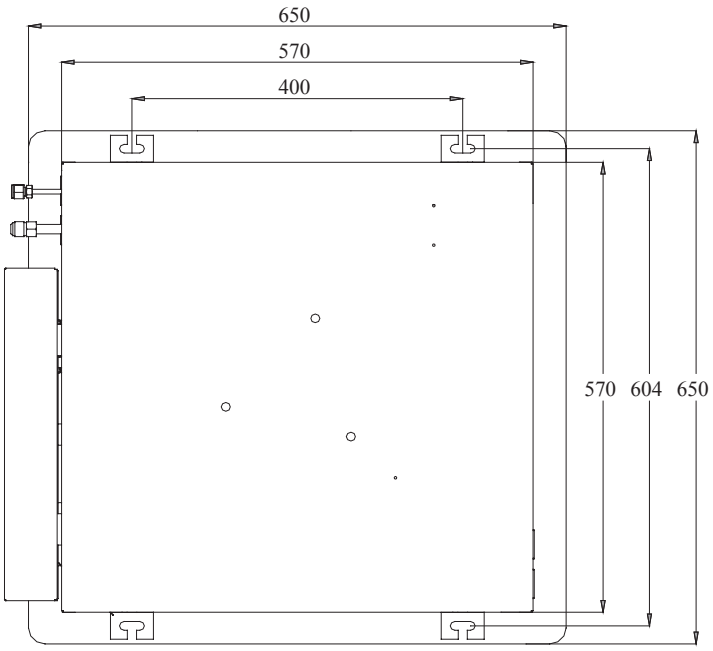
◆ Please contact the local SINCLAIR special nominated repair department before installation. Any malfunction caused by the unit that is installed by the department that is not special nominated by SINCLAIR would not deal with on time by the inconvenience of the business contact.

4.2.3 Dimension Data

Dimension of ceiling opening and location of the hoisting screw (M10)

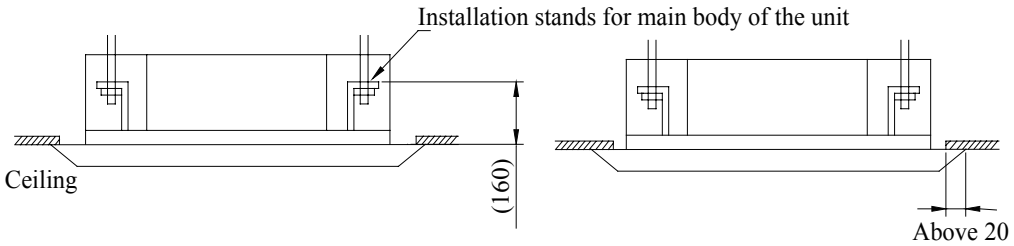

950(Decorated surface boards)
890*(Ceiling opening)
840(Indoor unit)
780(Gaps between hoisting screw rods)
Refrigerant pipe
Hoisting screw (X4)
680(Gaps between hoisting screw rods)
840(Indoor unit)
890(Ceiling opening)
950(Decorated surface boards)
A

Install dimension of mode MC-C24AI



Install dimension of mode MC-C12AI, MC-C18AI

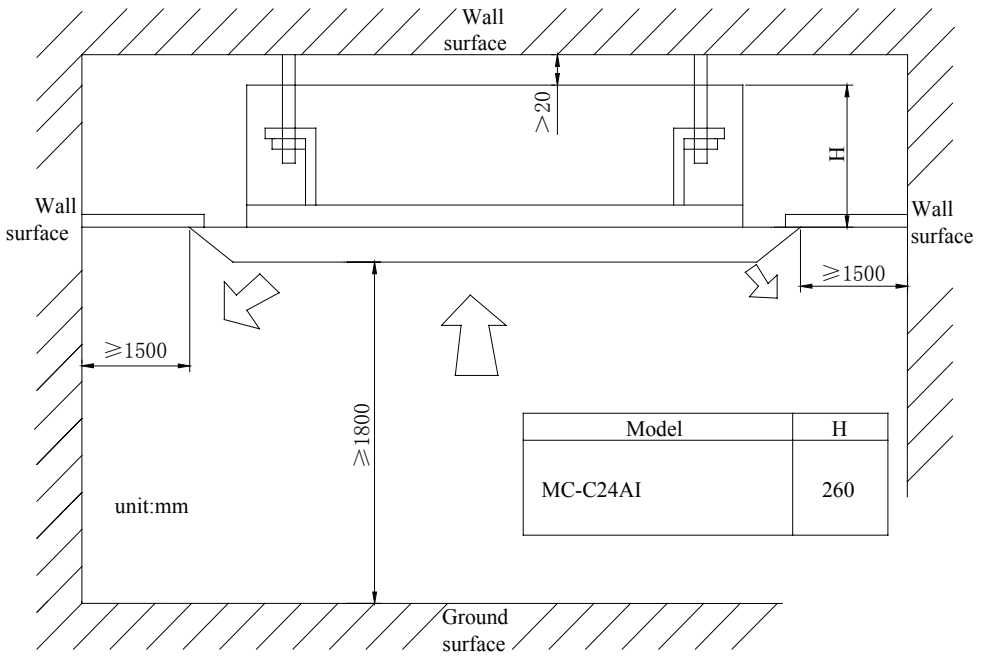
◆ The drilling of holes in the ceiling must be done by the professional personnel.



Notes: The dimension for the ceiling openings with * marks can be as large as 910mm. But the overlapping sections of the ceiling and the decorated surface boards should be maintained at no less than 20mm.

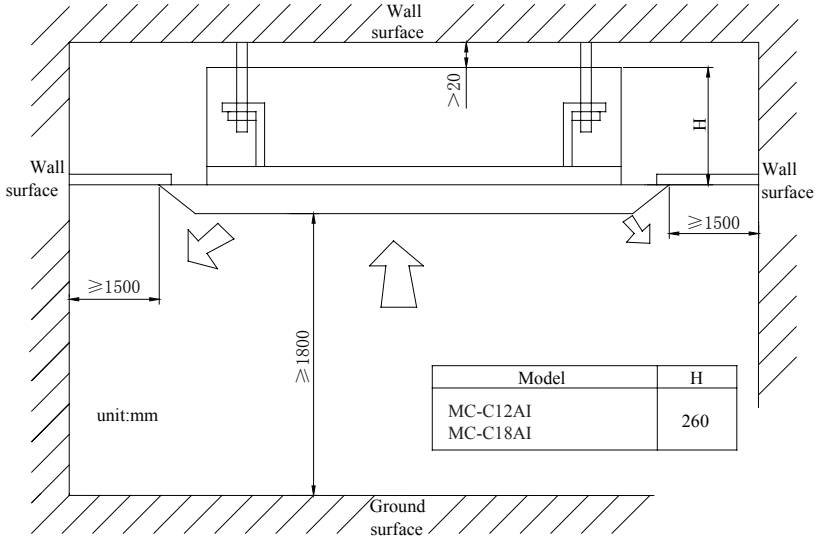
2.2.4 Installation Clearance Data

MC-C24AI



Model	H
MC-C24AI	260

MC-C12AI, MC-C18AI



Model	H
MC-C12AI MC-C18AI	260

★ **Main body of hoisting air conditioner**

a. The primary step for install the indoor unit.

◆ When attach the hoisting stand on hoisting screw, do use nut and gasket individually at the upper and lower of the hoisting stand to fix it. The use of gasket anchor board can prevent gasket break off.

b. Use install cardboard

◆ Please refer to the install cardboard about the dimension of ceiling opening.

◆ The central mark of the ceiling opening is marked on the install cardboard.

◆ Install the install cardboard on the unit by bolt (3 piece), and fix the angle of the drainage pipe at the outlet vent by bolt.

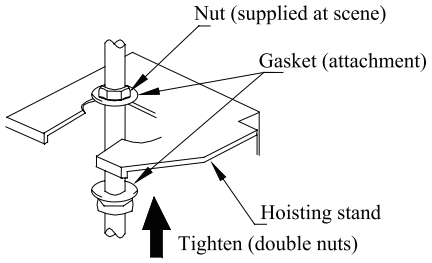
c. Adjust the unit to the suitable install place.

d. Check if the unit is horizontal.

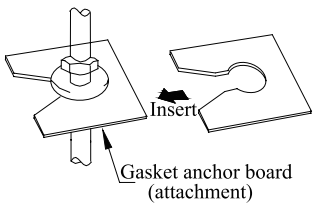
◆ Inner drainage pump and bobber switch are included in the indoor unit, check if 4 angle of every unit are horizontal by water lever. (If the unit is slant toward the opposite of the coagulate water flow, there may be malfunction of the bobber switch and lead water drop.)

e. Backout the gasket anchor board used to prevent gasket break off and tighten the nut on it.

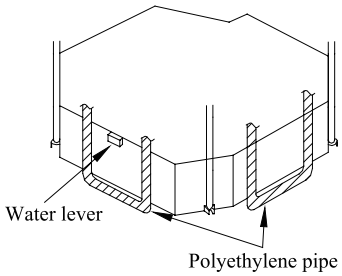
f. Backout the install cardboard.

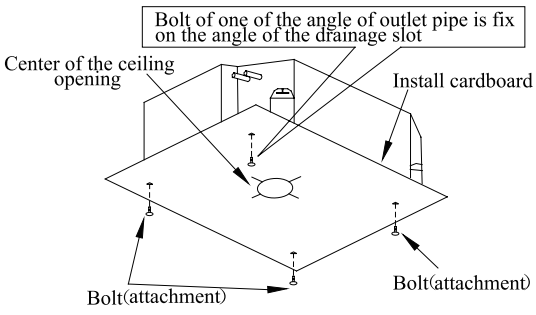


[Fix the hoisting stand firmly]



[Fix the gasket firmly]




Bolt of one of the angle of outlet pipe is fix on the angle of the drainage slot
Center of the ceiling opening
Install cardboard
Bolt(attachment)
Bolt(attachment)

[Fix the install cardboard]

⚠ **Note!**

● Please do tighten the nuts and bolts to prevent air conditioner break off.

★ **Connection of the refrigerant pipe**

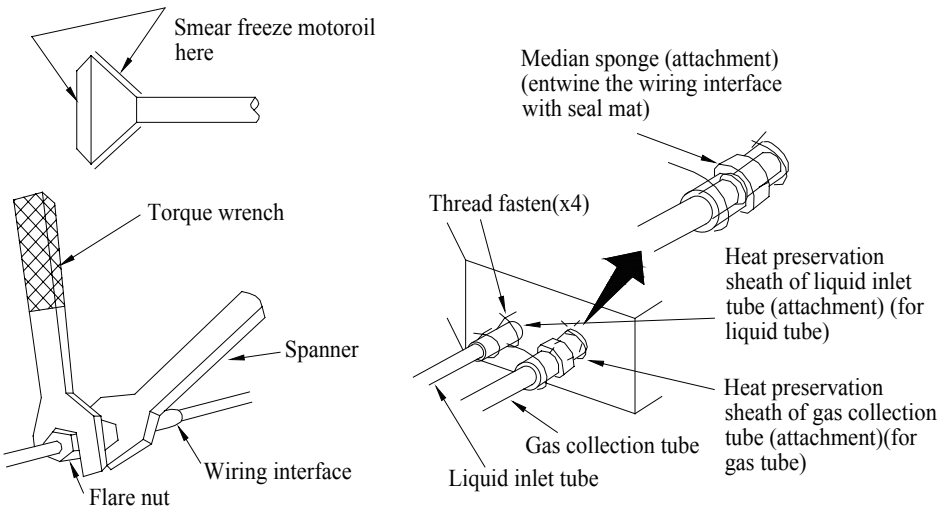
◆ When connect the pipe to the unit or backout it from the unit, please do use both spanner and torque wrench.

◆ When connect, smear both inside and outside of the flare nut with freeze motor oil, screw it by hand and then tighten it with spanner.

◆ Refer to form 1 to check if the wrench had been tightened (too tight would mangle the nut and lead leakage).

◆ Examine the connection pipe to see if it had gas leakage, then take the treatment of heat insulation, as shown in the fig.5.

◆ Only use median sponge to entwine the wiring interface of the gas pipe and heat preservation sheath of the gas collection tube.


Smear freeze motoroil here
Torque wrench
Spanner
Wiring interface
Flare nut
Median sponge (attachment) (entwine the wiring interface with seal mat)
Thread fasten(x4)
Heat preservation sheath of liquid inlet tube (attachment) (for liquid tube)
Heat preservation sheath of gas collection tube (attachment)(for gas tube)
Gas collection tube
Liquid inlet tube

Form 1: The tightening torque needed for tightening nut

Diameter（Inch）	Surface thickness（mm）	Tightening torque (N • m)
φ1/4''	⩾ 0.5	15-30 (N • m)
φ3/8''	⩾ 0.71	30-40 (N • m)
φ1/2''	⩾ 1	45-50 (N • ·m)
φ5/8''	⩾ 1	60-65 (N • m)
φ3/4''	⩾ 1	70-75 (N • ·m)

★ Drainage hose

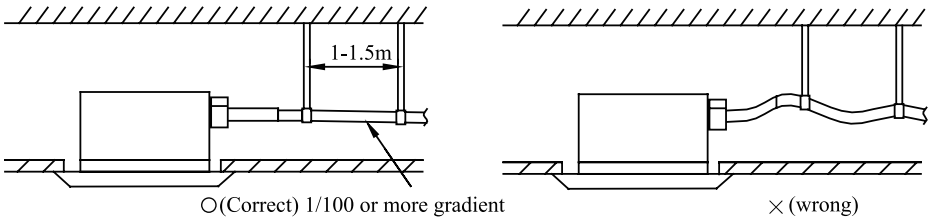
a. Install the drain hose

◆ The diameter of the drain hose should be equal or bigger than the connection pipe's. (The diameter of polythene pipe: Outer diameter 25mm Surface thickness ⩾ 1.5mm)

◆ Drain hose should be short and drooping gradient should at less 1/100 to prevent the formation of air bubble.

◆ If drain hose cannot has enough drooping gradient, drain raising pipe should be added.

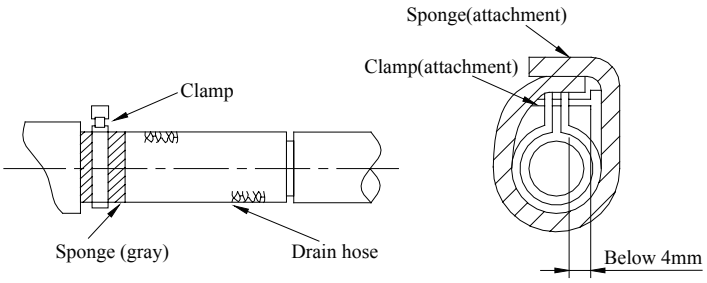
◆ To prevent bent of the drain hose, the distance between hoisting stand should is 1 to 1.5m.



◆ Use the drain hose and clamp attached. Insert the drain hose to the drain vent, and then tighten the clamp.

◆ Entwine the big sponge on the clamp of drain hose to insulate heat.

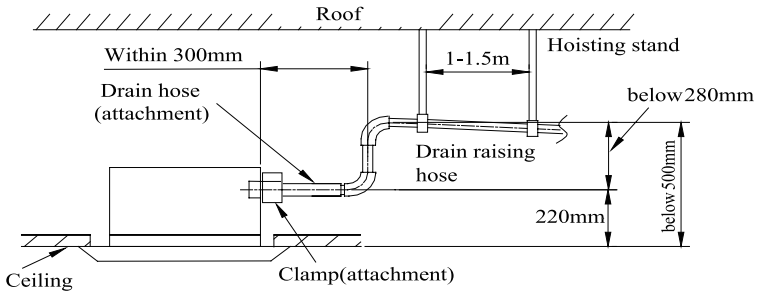
◆ Heat insulation should be done to indoor drain hose.



Drain stepup pipe note

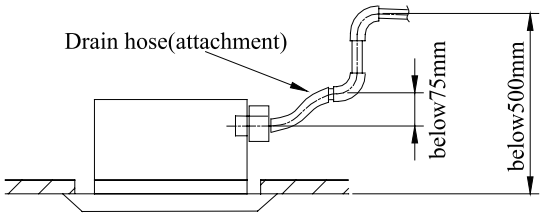
◆ The install height of the drain raising pipe should less than 280mm.

◆ The drain raising pipe should form a right angle with the unit, and distance to unit should not beyond 300mm.

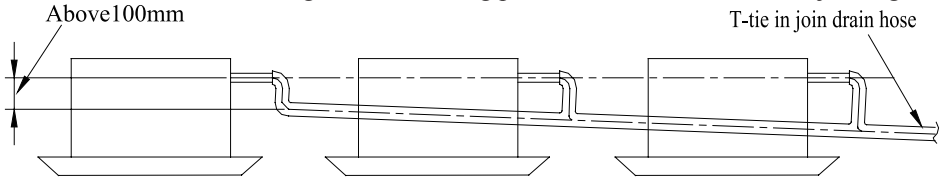


Instruction

◆ The slant gradient of the attached drain hose should be within 75mm so that the drain hole doesn't has to endure the unnecessary outside force.



◆ Please install the drain hose according to the following process if several drain hoses join together.



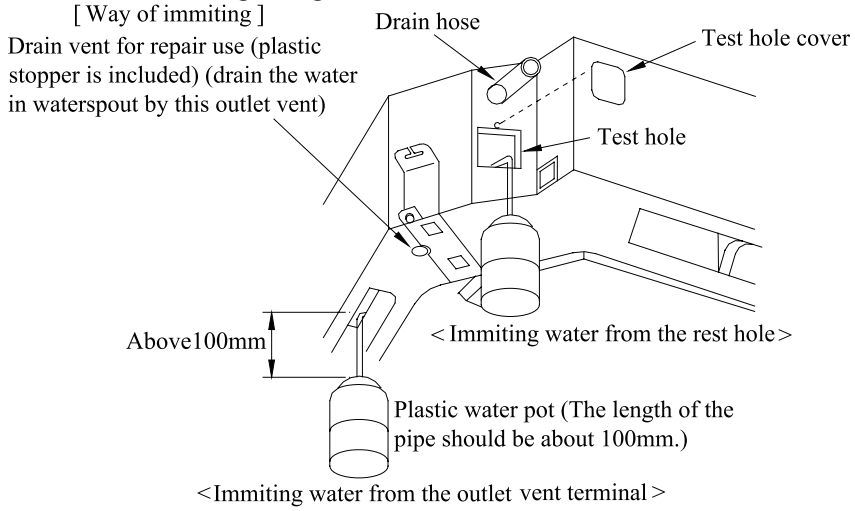
The specs of the selected join drain hose should fits the running capacity of the unit.

b. Check the smoothness of drain after installation.

◆ Check the drain state by immitting 600cc water slowly from the outlet vent or test hole.

◆ Check the drain in the state of refrigerating after installation of the electric circuit.

[Way of immiting]



<Immiting water from the outlet vent terminal >

4.3 Installation of Floor Ceiling Type

4.3.1 Before Installation

Check if there is any damage to the indoor unit, and the wireless controller and other part and components are prepared completely.

4.3.2 Installation Site

Selection of Installation Location for Air Conditioner Unit

> The installation of air conditioner unit must be in accordance with national and local safety codes.
> Installation quality will directly affect the normal use of air conditioner unit. The user is prohibited from installation by himself. Please contact your dealer after buying this machine. Professional installation workers will provide installation and test services according to installation manual.
> Do not connect to power until all installation work is completed.

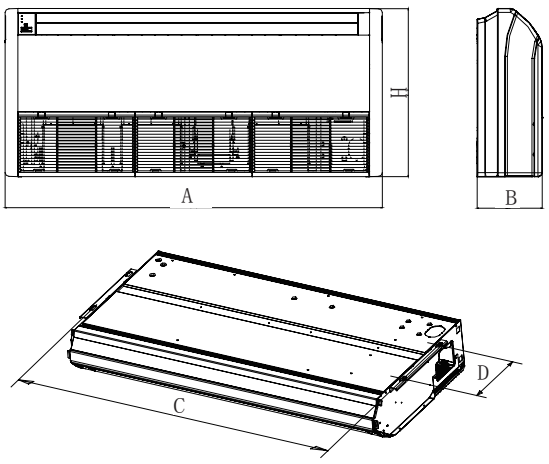
Selection of Installation Location

- ◆ Such a place where cool air can be distributed throughout the room.
- ◆ Such a place where is condensation water is easily drained out.
- ◆ Such a place that can handle the weight of indoor unit.
- ◆ Such a place, which has easy access for maintenance.
- ◆ Such a place where is permitting easy connection with the outdoor unit.
- ◆ Such a place where is 1m or more away from other electric appliances such as television, audio device, etc.
- ◆ Avoid a location where there is heat source, high humidity or inflammable gas.
- ◆ Do not use the unit in the immediate surroundings of a laundry, a bath, a shower or a swimming pool.
- ◆ Be sure that the installation conforms to the installation dimension diagram.

4.3.3 Dimension Data

When installing the indoor unit, you can refer the paper pattern for installation, and make sure that the drainage side must be 10mm lower than the other side in order to drain the condensation water fluently.

Unit:mm

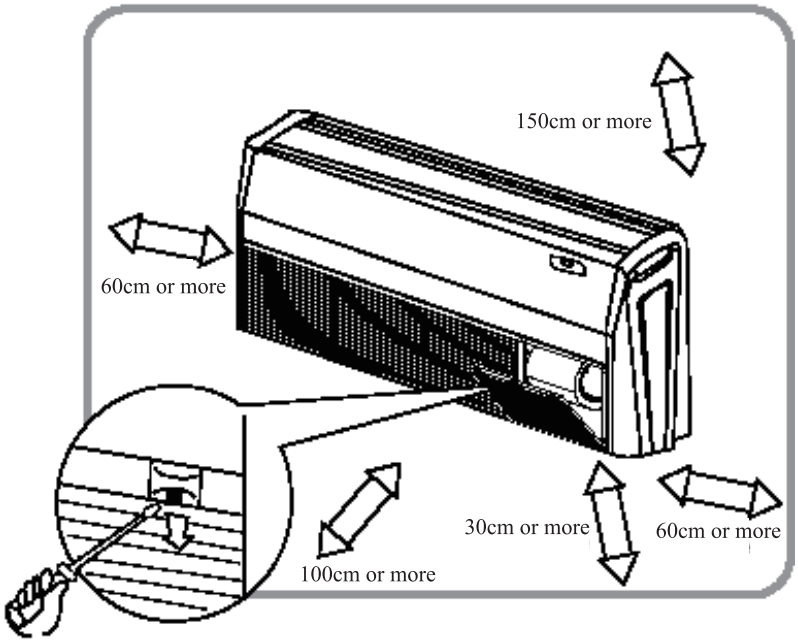


Model	A	B	H	C	D
MC-F09AI	1220	225	700	1158	280
MC-F12AI					
MC-F18AI					

4.3.4 Installation Clearance Data

a. Space dimension for installation of the unit

The space around the unit is adequate for ventilation .



b. Important Notice

◆ The unit must be installed by the professional personnel according to this install instruction to ensure the well use.

Please contact the local Sinclair special nominated repair department before installation. Any malfunction caused by the unit that is installed by the department that is not special nominated by Sinclair would not deal with on time by the inconvenience of the business contact.

◆ It should be done by professional personnel when the air conditioner unit is moved to other place.

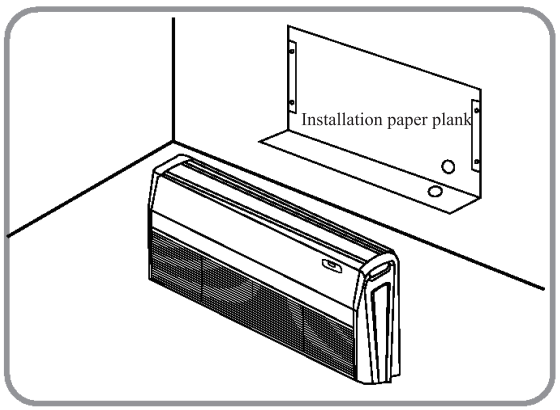
c. There are 2 styles of installation

＊ **Ceiling type**

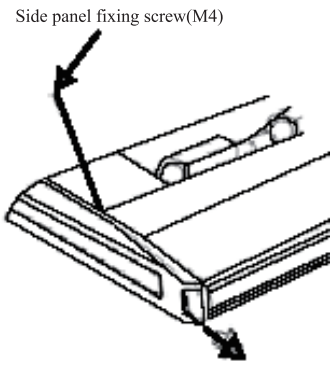
＊ **Floor type**

1) Each type is similar to the other as follows:

Determine the mounting position on ceiling or wall by using paper pattern to indicate indoor frame. Mark the pattern and pull out the paper pattern. (Refer to ①)



①



②

2) Remove the return grill, the side panel and the hanger bracket from the indoor unit as per procedure bellow.

◆ Press the fixing knob of the air intake grills, the grilles will be opened wider and then pull them out from the indoor.

◆ Remove the side panel fixing screw and pull to the front direction (arrow direction) to remove. Side panel fixing screw (Refer to ②).

◆ Loosen two hanger bracket setting bolts (M8) on eath side for less than 10mm. Remove two hanger bracket fixing bolts (M6) on the rear side. Detach the hanger bracker by pulling it backward (Refer to ④).

3) Set the suspension bolt. (Use W3/8 or M10 size suspension bolts)

Adjust the distance from the unit to the ceiling slab beforehand (Refer to ③)

4) Fix the hanger bracket to the suspension bolt.

⚠ **Warning !**

◆ Make sure that extended suspension bolt from the ceiling stays inside the arrowed position. Readjust the hanger

bracket when it is outside the arrowed position. (Refer to ⑤)

◆ Suspension bolt stays inside the cap of indoor unit. Never remove the cap.

5) Lift the unit and slide forward unit the dent. (Refer to ⑥)

6) Screw tightly both hanger bracket-setting bolts (M8). (Refer to ④)

7) Screw tightly both hanger bracket-fixing bolts (M6) to prevent the movement of the indoor unit. (Refer to ④)

8) Adjust the height so that rear side of the drainpipe slightly inclines to improve drainage.

⚠ **Caution !**

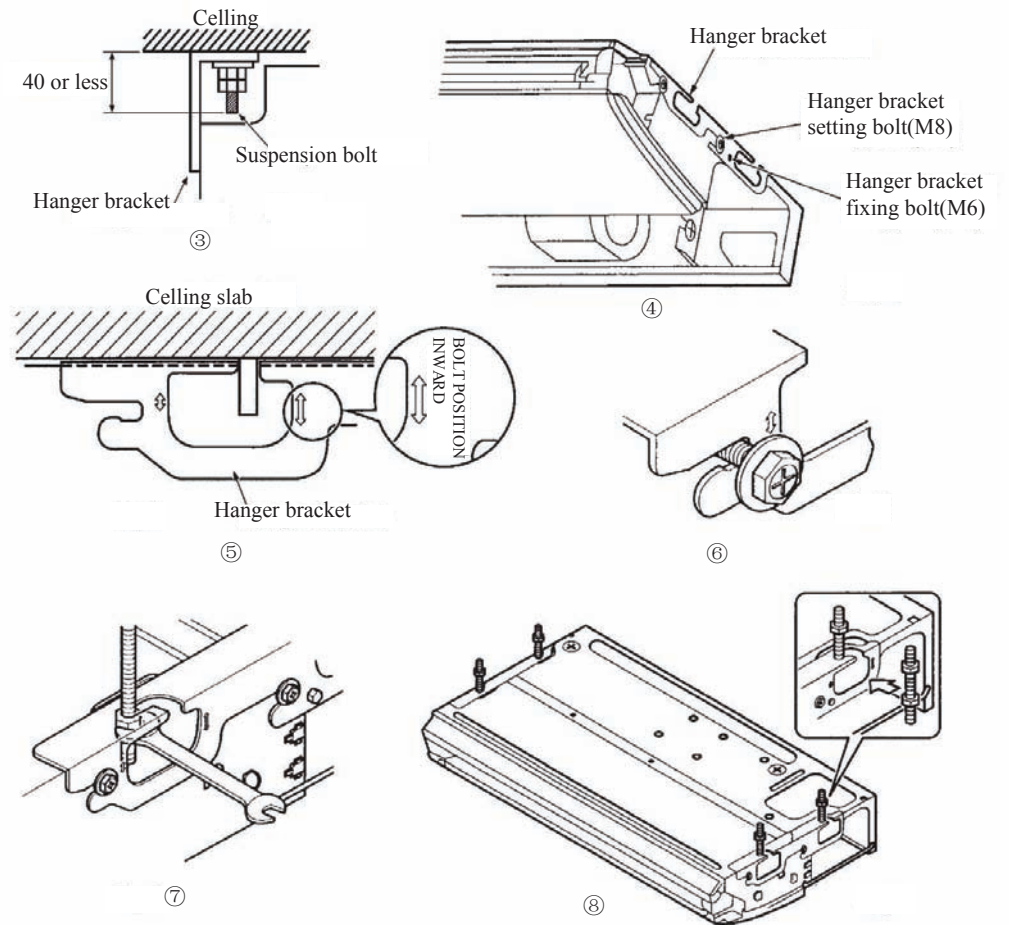
◆ Adjust the height by turning the nut with a spanner.

◆ Insert the spanner from the hanger bracket opening. (Refer to ⑦)

In case of hanging

It is possible to install using inward facing hanger brackets by not removing the brackets from the indoor unit. (Refer to ⑧)

Be sure to use only the specified accessories and parts for installation work.



5 REFRIGERATION PIPING WORK

5.1 Connection between Indoor and Outdoor Units

a. Wiring of the Power Cord

⚠CAUTION !

A breaker must be installed, capable of cutting off the power supply for the whole system.

1) Open the side plate.

2) Let the power cord go through the rubber ring.

3) Connect the power card to the terminals “L”, “N” and also the earthing bolt, and then connect the wiring terminals “N(1),2,3” of the indoor unit to those of the outdoor unit correspondingly.

4) Fix the power cord with wire clips.

b. Capacity Level and Capacity Code of the Indoor and Outdoor Units

	Capacity Level	Capacity Code
Indoor Unit	09	25
	12	35
	18	50
	21	60
	24	71
Outdoor Unit	36	100
	42	120

1) The outdoor unit with capacity level 36 can drive up to four sets of indoor units, while the outdoor unit 42 can drive up to five.

2) The sum of the capacity codes of the indoor units should b**e among 50%-150% o**f that of the outdoor unit.

c. Allowable Length and Height Fall of the Refrigerant Pipe

		Allowable Length		Refrigerant Pipe	
		36	42	36	42
Total Length(m)		70	80	$L_1+L_2+L_3+L_4$	$L_1+L_2+L_3+L_4+L_5$
Max. Length for Single Unit(m)		20	25	L_X	
Max. installation altitude	Outdoor unit and indoor unit	15	15	H1	
	Indoor unit and indoor unit	7.5	7.5	H2	

Dimension of the Refrigerant Pipe of the Indoor Unit

unit:mm

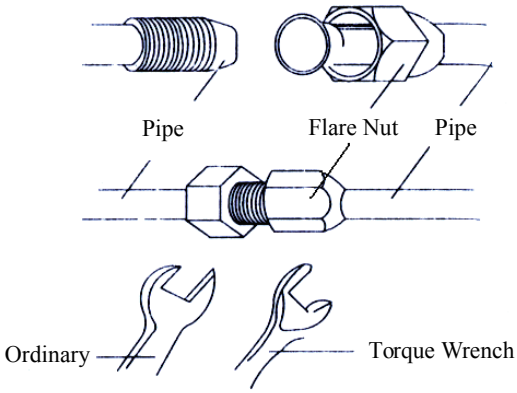
Capacity Level of the Indoor Unit	Gas Pipe	Liquid Pipe
09,12	φ9.52	φ6.35
18	φ12.7	φ6.35
21,24	φ15.9	φ9.52

d. Piping between the Indoor and Outdoor Units

1) Refer to Fig.6 for the moments of torque for tightening screws.

2) Let the flare end of the copper pipe point at the screw and then tighten the screw by hand.

3) After that, tighten the screw by the torque wrench unit it clatters.



4) The bending degree of the pipe can not be too small; otherwise it will crack. And please use a pipe bender to bend the pipe.

5) Wrap the exposed refrigerant pipe and the joints by sponge and then tighten them with the plastic tape.

Moments of Torque for Tightening Screws

Diameter	Wall Thickness（mm）	Moment of Torque
φ6.35mm	≥ 0.5	15-30 (N·m)
φ9.52mm	≥ 0.71	30-40(N·m)
φ12.7mm	≥ 1	45-50(N·m)
φ15.9mm	≥ 1	60-65(N·m)

⚠CAUTION !

a. During the connection of the indoor unit and the refrigerant pipe, never pull any joints of the indoor unit by force; otherwise the capillary pipe or other pipe may crack, which then would result in leakage.

b. The refrigerant pipe should be supported by brackets, that is, don't let the unit withstand the weight of it.

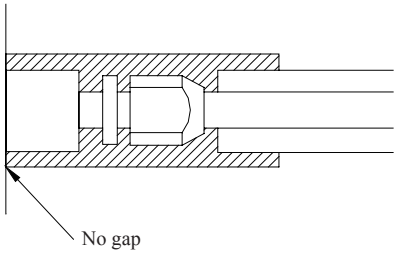
⚠CAUTION !

For the GMV multi VRF system, each pipe should be labeled to tell which system it belongs to avoid mistaken inaccurate piping.

e. Installation of the Protection Layer of the Refrigerant Pipe

1) The refrigerant pipe should be insulated by the insulating material and plastic tape in order to prevent condensing and leaking.

2) The joints of the indoor unit should be wrapped with the insulating material and no gas is allowed on the joint of the indoor unit.



⚠CAUTION !

After the pipe is protected well enough, never bend it to form a small angle; otherwise it would crack or break

f. Wrapping the pipe with tape:

1) Bundle the refrigerant pipe and electric wire together with tape, and separate them from the drain pipe to prevent the condensate water overflowing.

2) Wrap the pipe from the bottom of the outdoor unit to the top of the pipe where it enters the wall. During the wrapping, the later circle should cover half of the former one.

3) Fix the wrapped pipe on the wall with clamps.

⚠CAUTION !

a. Do not wrap the pipe too tightly; otherwise the insulation effect would be weakened. Additionally, make sure the drain hose is separated from the pipe

b. After that, fill the hole on the wall with sealing material to prevent wind and rain coming into the room.

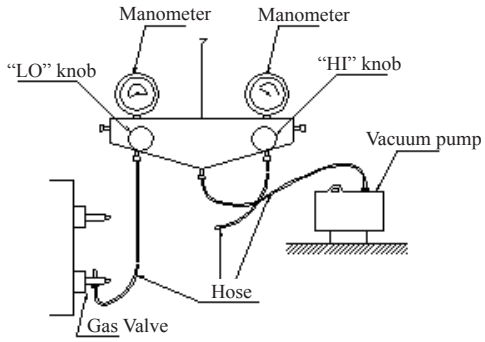
5.2 Refrigerant Charging and Trial Running

a. Refrigerant Charging

1) The refrigerant has been charged into the outdoor unit before shipment, while additional refrigerant still need be charged into the refrigerant pipe during the field installation.

2) Check if the liquid valve and the gas valve of the outdoor unit are closed fully.

3) As shown in the following figure, expel the gas inside the indoor unit and refrigerant pipe out by the vacuum pump.



4) When the compress is not running, charge the R410A refrigerant into the refrigerant pipe from the liquid valve of the outdoor unit (do not do it from the gas valve)

b. Calculation of the Additional Refrigerant Charge

1) Refrigerant Charge in the Outdoor Unit before Shipment

Model	MC-E36AI	MC-E42AI
Refrigerant Charge (kg)	3.6	4.8

Notes:

a. The refrigerant charge mentioned in the table above is not included those charged additionally in the indoor unit and the refrigerant pipe.

b. The amount of the additional refrigerant charge is dependent on the diameter and length of the liquid refrigerant pipe which is decided by the actual yield installation requirement.

c. Record the additional refrigerant charge for future maintenance.

2) Calculation of the Additional Refrigerant Charge

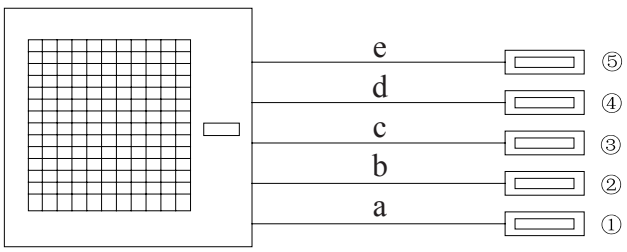
If the total refrigerant pipe length (liquid pipe) is smaller than that listed in the table below, no additional refrigerant will be charged.

Model	Total Liquid Pipe Lenght (a+b+c+d+e)
MC-E36AI	⩽ 40m
MC-E42AI	⩽ 50m

Additional Refrigerant Charge2=∑Extra Liquid Pipe Length×22g/m (liquid pipe 1/4") .

Note: if the total refrigerant pipe length is larger than that listed in the table above, the additional refrigerant for the extra length of the pipe needs to be charged **as per 22g/m**.

3) Example : MC-E42AI



Indoor Unit

Serial No.	Model
Indoor Unit ⑤	Ducted Type MC-D09AI
Indoor Unit ④	Ducted Type MC-D09AI
Indoor Unit ③	Ducted Type MC-D09A
Indoor Unit ②	Ducted Type MC-D09AI
Indoor Unit ①	Ducted Type MC-D18AI

Liquid Refrigerant Pipe

Serial No.	e	d	c	b	a
Diameter	φ6.35	φ6.35	φ6.35	φ6.35	φ9.52
Length	20m	20m	15m	5m	5m

The total length of each liquid refrigerant pipe is: e+d+c+b+a=20+20+15+5+5=65m. Thus, the minimum additional refrigerant charge=(65-50)×0.022=0.33kg (Note: no additional refrigerant is needed for the liquid pipe within 50m).

4) Additional Refrigerant Charge Record

Indoor Unit

No.	Indoor Unit Model	Additional Refrigerant Charge(kg)
1		
2		
……		
N		
Total		

Refrigerant Pipe

Diameter	Total Length(m)	Additional Refrigerant Charge(kg)
Φ15.9		
Φ12.7		
Φ9.52		
Φ6.35		
Total		

c. Items to be checked after the Installation

Items to be Checked	Possible Errors	Check Results
Has each part and component the of unit installed securely?	The unit may fall off, vibrate or generate noise.	
Has the gas leakage test been taken?	The cooling (heating) capacity may be poor.	
Is the thermal insulation sufficient?	Dews and water drops may be generated.	
Does the drainage go well?	Dews and water drops may be generated.	
Is the actual power voltage in line with the value marked on the nameplate?	The unit may break down or some components may be burnt out.	
Are the wiring and the piping correct?	The unit may break down or some components may be burnt out.	
Has the unit been earthed reliably?	There may be a danger of electric shock.	
Does the wire meet the regulated requirement?	The unit may break down or the component may be burnt out.	
Is there any obstacle at the air inlet/outlet of the indoor/outdoor unit?	The cooling (heating) capacity may be poor	
Have the length of the refrigerant pipe and the refrigerant charge been recorded?	It may be hard to know the exact refrigerant charge.	

d. Trial Running

1) Check before the Trial Running

◆ Check if the appearance of the unit and the piping system are damaged during the transportation.

◆ Check if the wiring terminals of the electronic component are secure.

◆ Check if the rotation direction of the fan motor is right.

◆ Check if all valves in the system are fully opened.

2) Trial Running

◆ The trial running should be carried out by the professionally skilled personnel on the premise that all items listed above are in normal conditions.

◆ Let the unit energized and switch the wired controller or the remoter controller to “ON”.

◆ The fan motor and compressor of the outdoor unit will run automatically in one minute.

◆ If there is some unusual sound after the compressor is started, turn off the unit for an immediate check.

6 ELECTRIC WIRING WORK

6.1 Wiring Principle

6.1.1 Itemized Description of Cautions.

The electrical installation must be done by professional electricians.

The electrical installation must be done in accordance with applicable technical codes and other rules.

⚠WARNING!

Please make sure to install earth leakage circuit breaker. Earth leakage circuit breaker must be installed to prevent electric shock or fire.

CAUTIONS!

The air conditioner must be securely earthed. Incorrect earthing may cause electric shock or fire.

◆ All the electric installations must be carried out by specialist technicians in accordance with the local laws, rules and these instructions.

◆ The indoor unit and outdoor unit shall use different power supplies. The indoor units under the same system must be powered by a unified power source. All the indoor units can only be controlled by one master power switch. Rated supply voltage and special circuit for air conditioner must be used.

◆ The earthing shall be secure. The earthing wire shall be connected to the special earthing device on the construction. The installation must be done by specialist technicians. Never connect the earth lead to the gas pipe, water pipe, lightening rod or telephone earth wire.

◆ To avoid electric shock or any accident due to mal-operation, the air switch and shock-resistant earth leakage circuit breaker that can cut off the power supply of the complete system must be installed. The air switch shall have both the magnetic tripping and thermal tripping functions to ensure protection against the short circuit and overload. Electric shock or fire might be caused if no installation of earth leakage circuit breaker. Do not switch on the power before completion of the electrical work. Make sure to cut off the power supply before repair.

◆ Under no condition could use the capacitor to improve the power factor.

◆ Please use cable conduit for power cords.

◆ Do not lay the electronic control cables (remote control and signal line) outside the machine with other cables; otherwise the machine might become malfunctioned or failed due to electrical noise.

◆ The power cord must be always connected to the power cord terminal board, and fixed by using the lock connector included with the machine. Meanwhile, prevent them from contacting the fitting pipe. The diameter of power cords shall be large enough. See below for the detailed specifications. The damaged power cords and connection lines must be replaced with the designated cables. When connecting the cable, please confirm that all the electrical components inside the electric box shall have no coupling or terminal loosened. (Improper installation of electric box cover may lead to potential water leakage, which will cause the unit abnormal or short circuit).

◆ Earth lead must be connected before connecting the power cord. An earth lead longer than the power cord shall be provided.

◆ For site wiring, please refer to the circuit diagram attached on the machine body.

6.1.2 Earthing Requirements

1) The air conditioner is classified into the Class I appliances, so its earthing must be reliable.

2) The yellow-green line of the air conditioner is the earth line and can not be used for other purpose, cut off or fixed by the self-tapping screw; otherwise it would cause the hazard of electric shock.

3) The reliable earth terminal should be provided and the earth wire can not be connected to any of the following places.

① Running water pipe;

② Coal gas pipe;

③ Sewage pipe;

④ Other places where the professional personnel think unreliable

6.2 Electric Wiring Design

⚠ **Caution:** The power of every indoor unit should be connected in outdoor unit.

a. Open surface panel.

b. Remove the electrical box cover.

c. Route the power connection cord from the back of the indoor unit and pull it toward the front through the wiring hole upward.

d. Connect the wiring (communication) through the piping hole of the chassis and the bottom of the appliance upward, then connect the brown wire to the Terminal board “3”;black wire(the communication wire) to the Terminal board“2”;blue wire to the Terminal board“N(1)”,and connect the earthing wire to the screw terminal on the electric box.

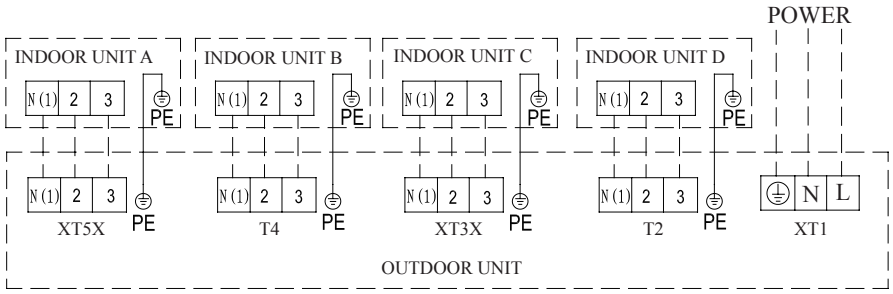
Clamp them with the corresponding wire clamp packed in the chassis;

e. Reassemble the electrical box cover.

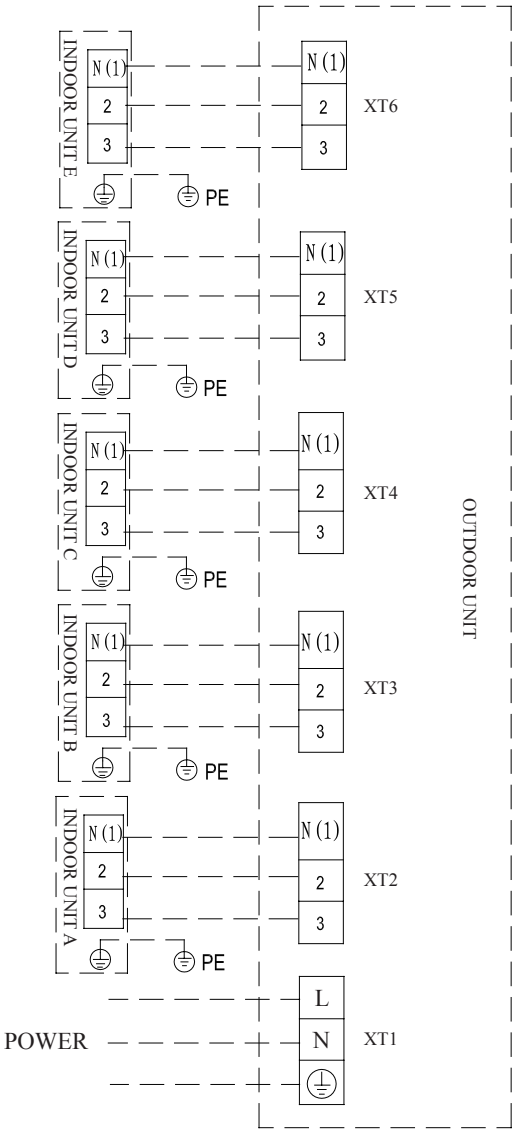
f. Recover the surface panel.

g. The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

MC-E36AI



MC-E42AI



⚠ Caution !

a. The incorrect of wiring connecting would lead malfunction of some of the electric elements.

b. Make sure that the lead between the connect end and the clamp end has some need space after the wire is fixed.

c. The appliance shall be installed in accordance with national wiring regulations.

Noise Precautions

1) The air conditioning unit should be installed where ventilation is in good condition, otherwise the working capability of the unit would be reduced or working noise would be increased.

2) The air conditioning unit should be installed on the base frame which is stable and secure uncouth to withstand the weight of the unit; otherwise it would incur vibration and noise.

3) During the installation, a consideration should be taken that the produced hot air or noise should not affect neighbors and surroundings.

4) Do not stack obstacles near the air outlet of the outdoor unit; otherwise it would reduce the working capability of the unit or increase the working noise.

5) In the event of the occurrence of abnormal noise, please contact the sales agent as soon as possible.

Accessories for Installation

Refer to the packing list for the accessories of the indoor and outdoor units respectively.

6.3 Specification of Power Supply Wire and Air Switch

1) The installation must be done in accordance with the national wiring regulations.

2) Only the power cord with the rated voltage and exclusive circuit for the air conditioning can be used.

3) Do not pull the power cord by force.

4) The electric installation should be carried out by the professional personnel as instructed by the local laws, regulations and also this manual.

5) The diameter of the power cord should be large enough and once it is damaged it must be replaced by the dedicated one.

6) The earthing should be reliable and the earth wire should be connected to the dedicated device of the building by the professional personnel. Besides, the air switch coupled with the leakage current protection switch must be equipped, which is of enough capacity and of both magnetic and thermal tripping functions in case of the short circuit and overload.

Models	Power Supply	Capacity of the **Air Switch**	Recommended Cord (pieces× sectional area)
MC-E36AI	220-240V~ 50Hz	32A	$6mm^2 \times 3$
MC-E42AI	220-240V~ 50Hz	32A	$6mm^2 \times 3$

MAINTENANCE

MAINTENANCE

1 TROUBLE TABLE

⚠ WARNING !

a. In the event of abnormal conditions (like, stinky smell), please shut off the main power supply immediately and then contact the SINCLAIR appointed service center; otherwise the continuous abnormal running would damage the air conditioning unit and also would cause electric shock or fire hazard etc.

b. Do not repair the air conditioning personally but instead contact the professionally skilled personnel at the SINCLAIR appointed service center, as the incorrect repair would cause electric shock or fire hazard etc.

1.1 Please check the following items before contact the maintenance serviceman

Conditions	Causes	Corrective Actions
The unit does not run	Broken fuse or opened breaker	Change the fuse or close the breaker
	Power off	Restart the unit when power on
	Loosened power supply plug.	Plug the power supply properly.
	Insufficient batteries voltage of the remote controller	Change new batteries
	Remote controller out of the control scope	Keep the control distance within 8 meters.
The unit stops soon after it starts	Clogged inlet/outlet of the indoor/outdoor unit	Clear the obstacle
Cooling/Heating is abnormal	Clogged inlet/outlet of the indoor/outdoor unit	Clear the obstacle
	Improperly set temperature	Adjust the setting of the remote or wired controller.
	Too low set fan speed	Adjust the setting of the remote or wired controller.
	Incorrect air direction	Adjust the setting of the remote or wired controller.
	Opened door and window	Close the door and window
	Direct sunlight	Hang a curtain or blinds over the window.
	Too much people in the room	
	Too much heat sources in the room	Reduce the heat sources
	Dirty filter screen	Clean the filter screen

Note:

If the air conditioner still runs abnormally after the above check and handling, please contact the maintenance serviceman at the local appointed service center and also give a description of the error occurred as well as the model of the unit

1.2 The conditions listed below are not classified into errors

Conditions		Causes
The unit does not run	When restart the unit soon after it is stopped.	The overload protection switch of the unit let the startup delayed for three minutes.
	As soon as power is on.	The unit will stand by for approximate one minute.
The unit blows out mist	When the cooling operation starts.	The hi-humidity air indoor is cooled quickly.
The unit generates noise	The unit “clatters” as soon as it starts running.	It is the sound generated during the initialization of the electronic expansion valve.
	The unit “swishes” during the cooling operation.	It the sound when the refrigerant gas runs inside the unit.
	The unit “swishes” when it is started or stopped.	It is the sound when the refrigerant gas stops running.
	The unit “swishes” when in it is and after the running.	It is the sound when the draining system is operating.
	The unit “squeaks” when it is in and after the running.	It is the sound of frication generated by the skin plate etc which swells due to the temperature change.
The unit blows out dust.	When the unit restarts after it is not used for a long time.	The dust inside the unit is blown out again.
The unit emits odors.	When the unit is running.	The odors absorbed in are blown out again.

1.3 Error description

If some error occurs when the unit is running, the error code will be displayed on the wired controller and the main board 88 of the outdoor unit.See the table before for more details about the meaning of each error.

Residential AC Errors	Commerical AC Errors	Outdoor Unit "88" Display	Indicating Lamp			Lamp Panel "88" Display (Floor Ceiling Type)	Wired Controller Display
			Running	Cooling	Heating		
/	Defrosting mode 1	08	/	/	/	/	/
/	Defrosting mode 2	0A	/	/	/	/	/
/	heating overload protection	0C	Flash 3 times	Flash 3 times	Flash 3 times	/	oE
/	Normal running	ON	/	/	/	/	/
Short/open circuit of the liquid valve temperature sensor	Short/open circuit of he liquid valve temperature sensor	Shown as Table 16	/	Flash 19 times	/	b5	b5
Short/open circuit of the gas valve temperature sensor	Short/open circuit of the gas valve temperature sensor	Shown as Table 16	/	Flash 22 times	/	b7	b7
Refrigerant insufficiency or blockage protection (available for the residential outdoor unit)	Refrigerant insufficiency or blockage protection (available for the residential outdoor unit)	F0	/	Flash 10 times	/	oE	oE
Short/open circuit of the indoor ambient temperature sensor	Short/open circuit of the indoor ambient temperature sensor	Shown as Table 16	/	Flash once	/	F1	F1
Short/open circuit of the indoor evaporator	Short/open circuit of the indoor evaporator	Shown as Table 16	/	Flash twice	/	F2	F2
Short/open circuit of the of the outdoor ambient temperature sensor	Short/open circuit of the of the outdoor ambient temperature sensor	F3	/	Flash 3 times	/	F3	F3
Short/open circuit of the temperature sensor at the midway of the condenser coil (for the commercial unit)	Short/open circuit of the temperature sensor at the midway of the condenser coil (for the commercial unit)	F4	/	Flash 4 times	/	F4	F4
Short/open circuit of the outdoor discharge temperature sensor	Short/open circuit of the outdoor discharge temperature sensor	F5	/	Flash 5 times	/	F5	F5
Oil returning in cooling	Oil returning in cooling	F7	/	/	/	/	/
System high pressure protection	System high pressure protection	E1	Flash once	/	/	E1	E1
Anti-freezing protection	Anti-freezing protection	E2	Flash twice	/	/	E2	E2
System low pressure protection (reserved)	System low pressure protection	E3	Flash 3 times	/	/	E3	E3
Compressor discharge high temperature protection	Compressor discharge high temperature protection	E4	Flash 4 times	/	/	E4	E4
Whole unit over-current protection	Whole unit over-current protection	E5	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Communication error between the indoor and outdoor units	Communication error between the indoor and outdoor units	Shown as Table 16	Flash 6 times	/	/	E6	E6
Mode conflict	Mode conflict	Shown as Table 16	Flash 7 times	/	/	E7	E7
Overload protection	Overload protection	E8	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Anti cold blow protection	/	E9	/	/	/	/	/
/	Indoor unit water overflow error		/	Flash	Flash	E9	E9
Trial run/trial operation	Trial run/trial operation	dd	Quick flash	Quick flash	Quick flash	dd	dd
Refrigerant recovery mode	Refrigerant recovery mode	Fo	Quick flash	Quick flash	/	Fo	Fo
Drive module resetting (for the commercial unit)	IPM Drive module resetting	P0	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE

Min. cooling/heating (capability test code)	Cooling IPLV test	P0	/	Quick flash	/	P0	P0
	Cooling IPLV test		/	/	Quick flash	P0	
Mid. Cooling/heating (capability test code)	Cooling level AA performance test	P3	/	Quick flash	/	P3	P3
	Level AA cooling performance test		/	/	Quick flash	P3	
Phase over-current protection	Compressor over-current protection	P5	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Drive board communication error(for the commercial unit)	Communication error between the inverter driver to the main controller	P6	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Short/open circuit of the of the module temperature sensor	Short/open circuit of the of the module temperature sensor	P7	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Module temperature protection	Module temperature protection	P8	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
AC contact protection (for the commercial unit)	AC contact protection	P9	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Circuit sensor error	Circuit sensor error	Pc	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Transducer connection protection (for the commercial unit)	Transducer connection protection	Pd	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
AC current protection(input side)	AC current protection(input side)	PA	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Temperature drift protection (for the commercial unit)	Temperature drift protection	PE	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Drive board ambient temperature sensor error (for the commercial unit)	Drive board ambient temperature sensor error	PF	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
DC link high voltage protection	DC link low voltage protection	PL	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
DC link low voltage protection	DC link high voltage protection	PH	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
/	Abnormal AC input voltage	PP	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Capacitor charging error	Capacitor charging error	PU	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Jumper terminal error protection	Jumper terminal error protection	C5	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Defrosting or oil returning in heating	Defrosting or oil returning in heating	H1	/	/	Flash once	H1	Defrosting symbol displayed
/	Forcible defrosting	H1	Quick flash	/	/	H1	H1
Compressor thermal overload protection.	Compressor overload protection.	H3	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Modulecurrent protection (namely IPM protection)	IPM Module current protection	H5	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Compressor desynchronizing	Compressor desynchronizing	H7	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
PFC Protection	PFC Protection	HC	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Too high power protection (available for the residential outdoor unit)	Too high power protection (available for the residential outdoor unit)	L9	Flash 20 times	/	/	oE	oE
Compressor startup failure	Compressor startup failure	Lc	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Compressor phase failure/ reverse protection	Compressor phase failure/ reverse protection	Ld	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Compressor rotation failure(for the commercial unit)	Compressor rotation failure(for the commercial unit)	LE	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE
Over speed (for the commercial unit)	Over speed	LF	Flash 3 times	Flash 3 times	Flash 3 times	oE	oE

Short/open circuit of the temperature sensor at the inlet of the condenser coil (for the commercial unit)	/	A5	/	/	/	/	/
Short/open circuit of the temperature sensor at the outlet of the condenser coil (for the commercial unit)	/	A7	/	/	/	/	/
Memory card error	/	EE	/	/	/	/	/
Frequency limitation/ degradation for module circuit protection (for phase circuit)	/	En	/	/	/	/	/
Frequency limitation/ degradation for module temperature protection	/	EU	/	/	/	/	/
Frequency limitation/ degradation for overload	/	F6	/	Flash 6 times	/	/	/
Frequency limitation / degradation for circuit protection of the whole unit	/	F8	/	Flash 8 times	/	/	/
Frequency limitation/ degradation for module circuit protection (for phase circuit)	/	F9	/	Flash 9 times	/	/	/
Frequency limitation/ degradation for anti-freezing protection	/	FH	/	Flash 2 times	Flash 2 times	/	/
No indoor fan motor	/	H6	Flash 11 times	/	/	/	/
Compressor demagnetizing protection	/	HE	/	/	Flash 14 times	/	/
Indoor and outdoor units unmatched	/	LP	Flash 19 times	/	/	/	/
Compressor phase circuit detection error	/	U1	/	/	Flash 12 times	/	/
DC link voltage drop error	/	U3	/	/	Flash 20 times	/	/
Zero detection circuit error	/	U8	Flash 17 times	/	/	/	/
Nominal cooling/heating (capability test code)	/	P1	/	/	/	/	/
Max. cooling/heating (capability test code)	/	P2	/	/	/	/	/

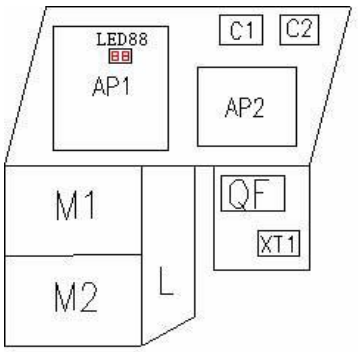
The words in gray means the corresponding function is unavailable.

Error Code	Error Description	Error Code	Error Description	Error Code	Error Description
13	Unit A indoor unit pipe outlet temperature sensor error	23	Unit B indoor unit pipe outlet temperature sensor error	33	Unit C indoor unit pipe outlet temperature sensor error
14	Unit A indoor pipe inlet temperature sensor error	24	Unit B indoor pipe inlet temperature sensor error	34	Unit C indoor pipe inlet temperature sensor error
15	Unit A indoor ambient temperature sensor error	25	Unit B indoor ambient temperature sensor error	35	Unit C indoor ambient temperature sensor error
16	Unit A mode conflict	26	Unit B mode conflict	36	Unit C mode conflict
17	Unit A anti-freezing protection	27	Unit B anti-freezing protection	37	Unit C anti-freezing protection
41	Unit D communication error	46	Unit D mode conflict	54	Unit E indoor pipe inlet temperature sensor error
42	Unit D indoor pipe midway temperature sensor error	47	Unit D anti-freezing protection	55	Unit E indoor ambient temperature sensor error

43	Unit D indoor unit pipe outlet temperature sensor error	51	Unit E communication error	56	Unit E mode conflict
44	Unit D indoor pipe inlet temperature sensor error	52	Unit E indoor pipe midway temperature sensor error	57	Unit E anti-freezing protection
45	Unit D indoor ambient temperature sensor error	53	Unit E indoor unit pipe outlet temperature sensor error	C5	Jumper terminal error

Error description of outdoor refrigerant pipe detection function

Wiring error or component error	**Unit which is detecting**	**Unit which isn't detecting**
5E	01	**
5E	02	**
5E	03	**
5E	04	**
5E	05	**
Indoor unit gas pipe connection error or component error	**Unit which is detecting**	--
5P	01	--
5P	02	--
5P	03	--
5P	04	--
5P	05	--



Outdoor Unit: MC-E36AI, MC-E42AI

(Note: Refer to the real products for the exact position of each component.)

Once errors are displayed on the controller, please shut off the air conditioning unit and contact the professionally skilled personnel for troubleshooting.

2 FLOW CHART OF TROUBLESHOOTING

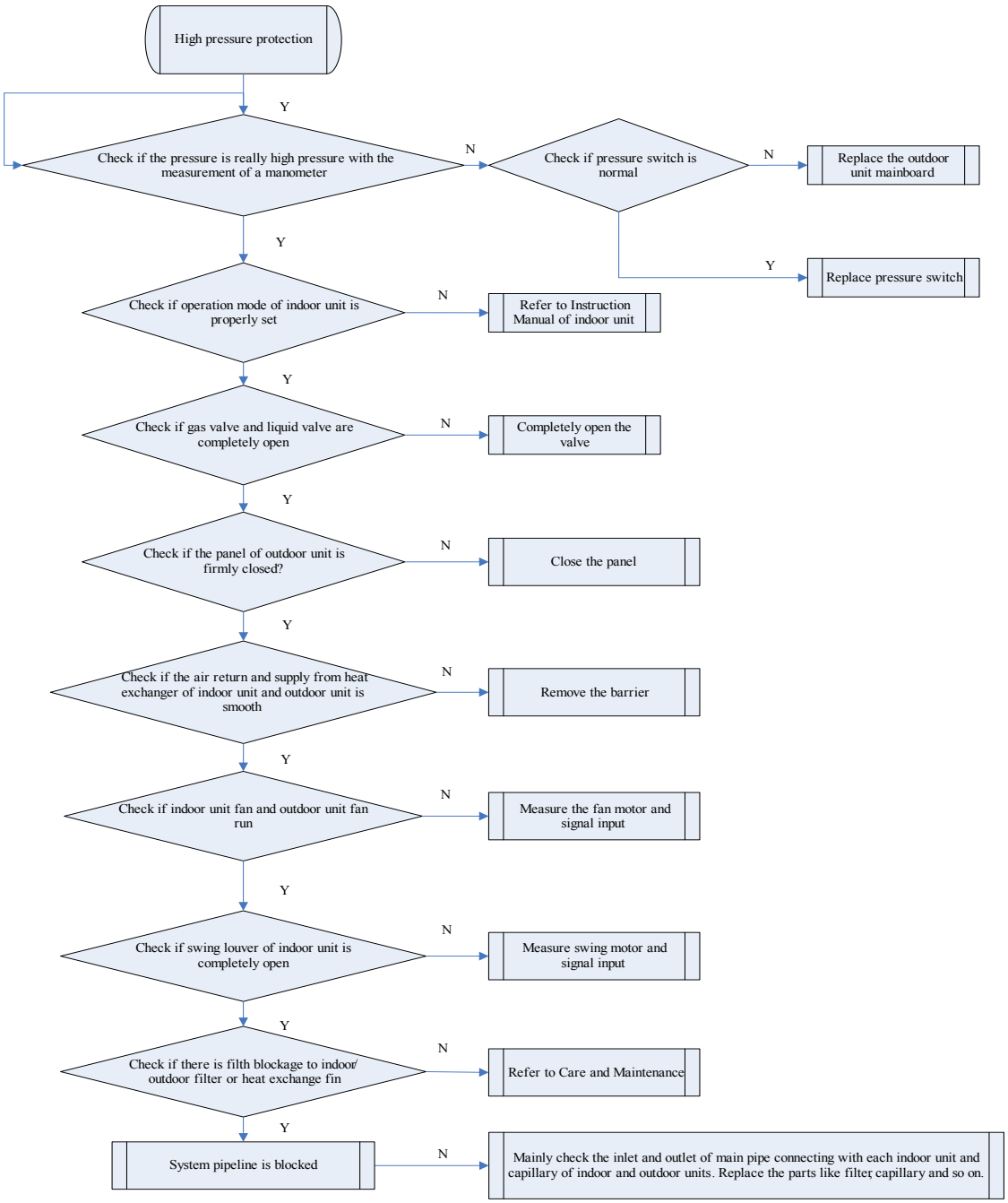
Service personnel shall collect the malfunction information as much as possible and research them thoroughly, list these electrical parts which may cause malfunction, service personnel shall be able to determine the specific reason and solve the faulted parts.

Observe the status of the complete device and do not observe the partial

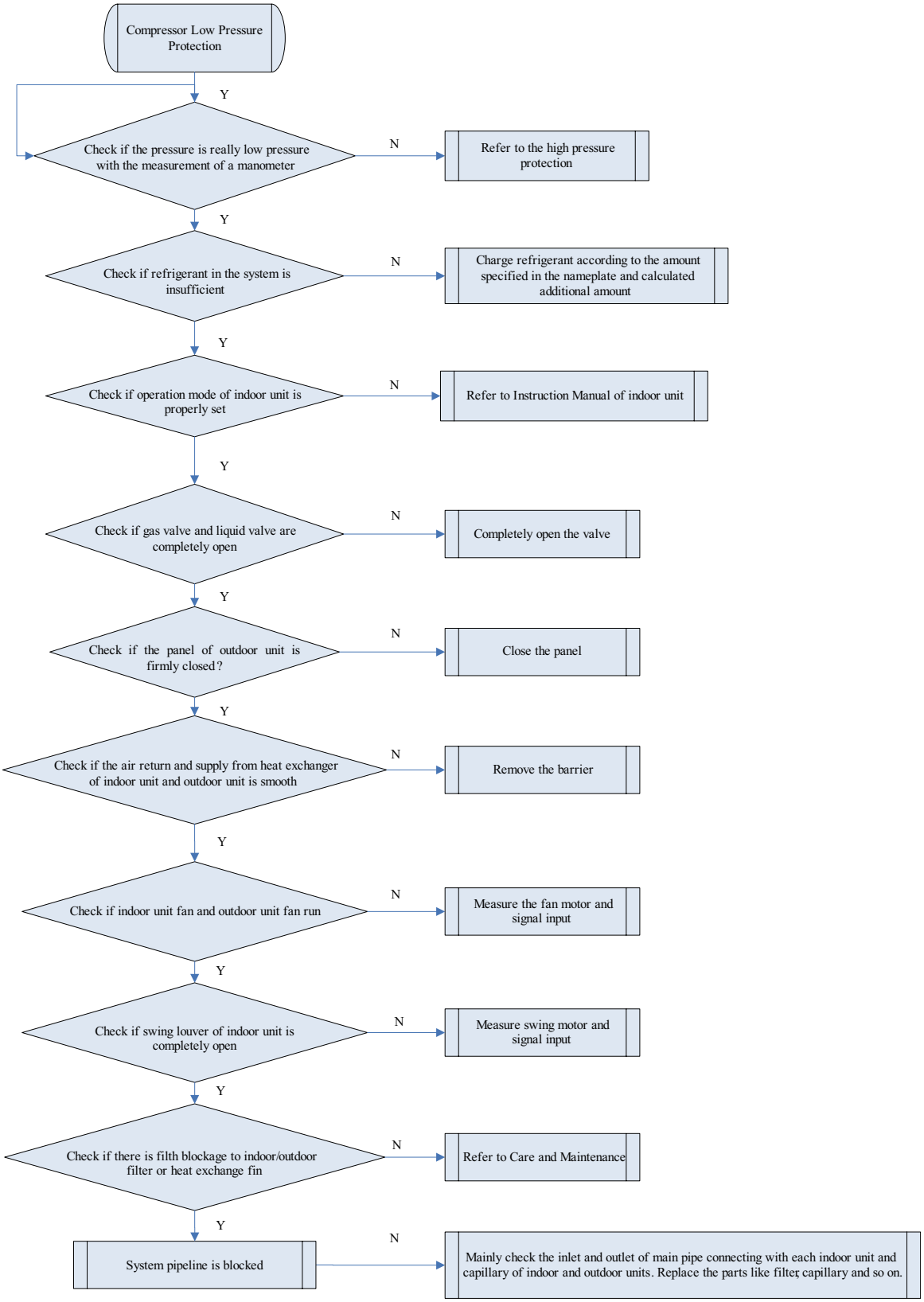
It is advised to start from the simple operation during analyzing ,judging and confirming malfunction reason, then conduct the complicated operations such removal of device, part replacement and refrigerant filling.

Find the malfunction reason carefully as unit may occur several malfunction at the same time and one malfunction may develop into several malfunction, so entire system analysis shall be established to make the judged result exact and credible.

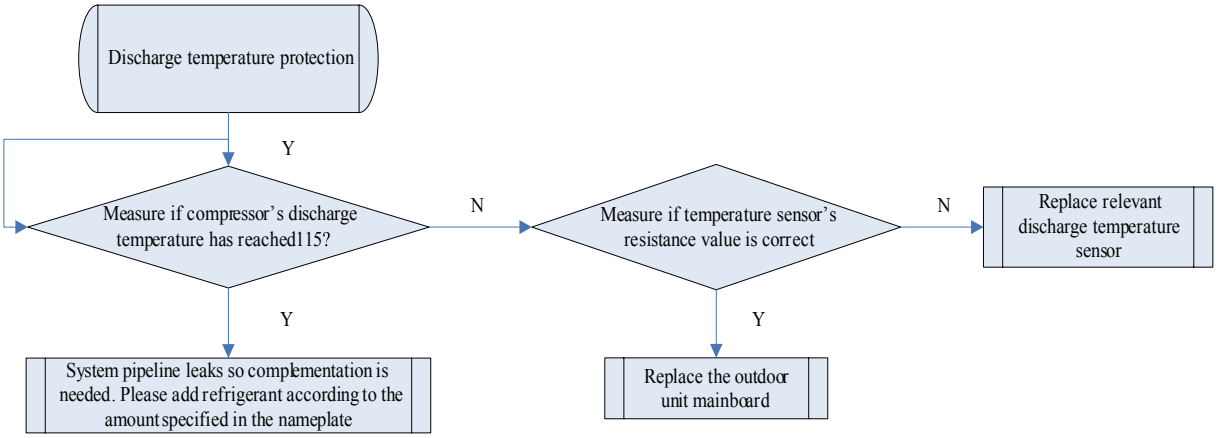
◆ Malfunction display: E1 Compressor High Pressure Protection


High pressure protection
Y
Check if the pressure is really high pressure with the measurement of a manometer
N
Check if pressure switch is normal
N
Replace the outdoor unit mainboard
Y
Replace pressure switch
Y
Check if operation mode of indoor unit is properly set
N
Refer to Instruction Manual of indoor unit
Y
Check if gas valve and liquid valve are completely open
N
Completely open the valve
Y
Check if the panel of outdoor unit is firmly closed?
N
Close the panel
Y
Check if the air return and supply from heat exchanger of indoor unit and outdoor unit is smooth
N
Remove the barrier
Y
Check if indoor unit fan and outdoor unit fan run
N
Measure the fan motor and signal input
Y
Check if swing louver of indoor unit is completely open
N
Measure swing motor and signal input
Y
Check if there is filth blockage to indoor/ outdoor filter or heat exchange fin
N
Refer to Care and Maintenance
Y
System pipeline is blocked
N
Mainly check the inlet and outlet of main pipe connecting with each indoor unit and capillary of indoor and outdoor units. Replace the parts like filter, capillary and so on.

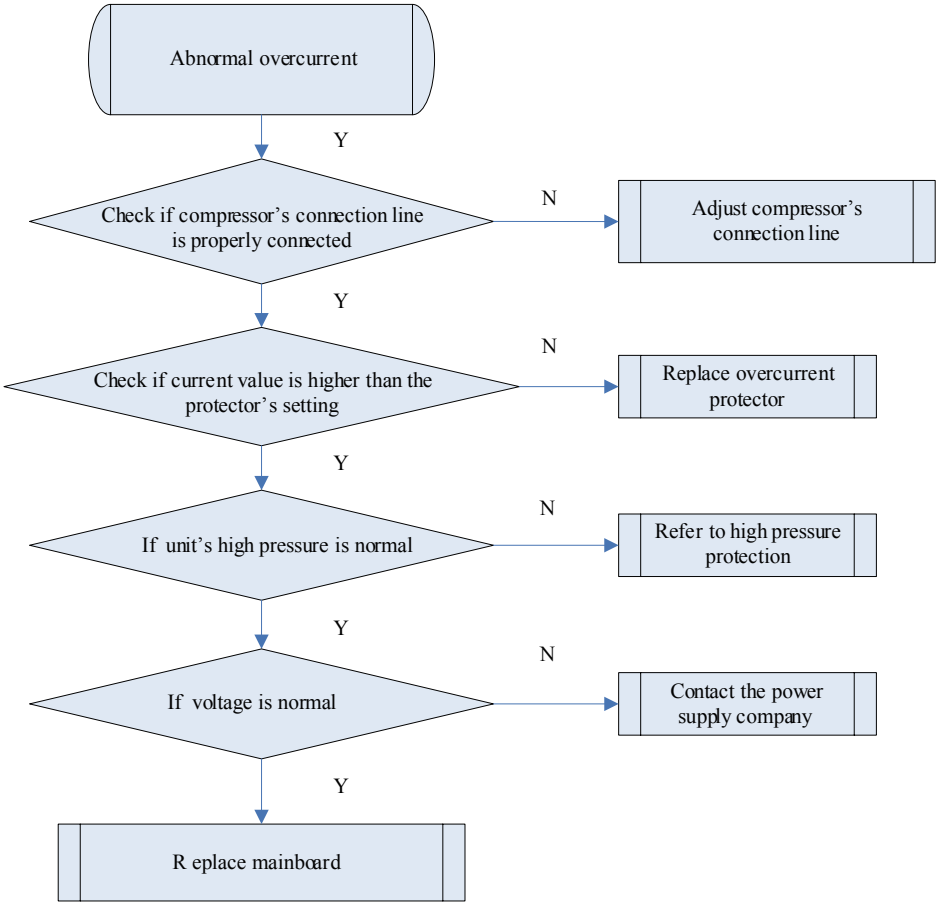
◆ Malfunction display: E3 Compressor Low Pressure Protection


Compressor Low Pressure Protection
Y
Check if the pressure is really low pressure with the measurement of a manometer
N
Refer to the high pressure protection
Y
Check if refrigerant in the system is insufficient
N
Charge refrigerant according to the amount specified in the nameplate and calculated additional amount
Y
Check if operation mode of indoor unit is properly set
N
Refer to Instruction Manual of indoor unit
Y
Check if gas valve and liquid valve are completely open
N
Completely open the valve
Y
Check if the panel of outdoor unit is firmly closed?
N
Close the panel
Y
Check if the air return and supply from heat exchanger of indoor unit and outdoor unit is smooth
N
Remove the barrier
Y
Check if indoor unit fan and outdoor unit fan run
N
Measure the fan motor and signal input
Y
Check if swing louver of indoor unit is completely open
N
Measure swing motor and signal input
Y
Check if there is filth blockage to indoor/outdoor filter or heat exchange fin
N
Refer to Care and Maintenance
Y
System pipeline is blocked
N
Mainly check the inlet and outlet of main pipe connecting with each indoor unit and capillary of indoor and outdoor units. Replace the parts like filter, capillary and so on.

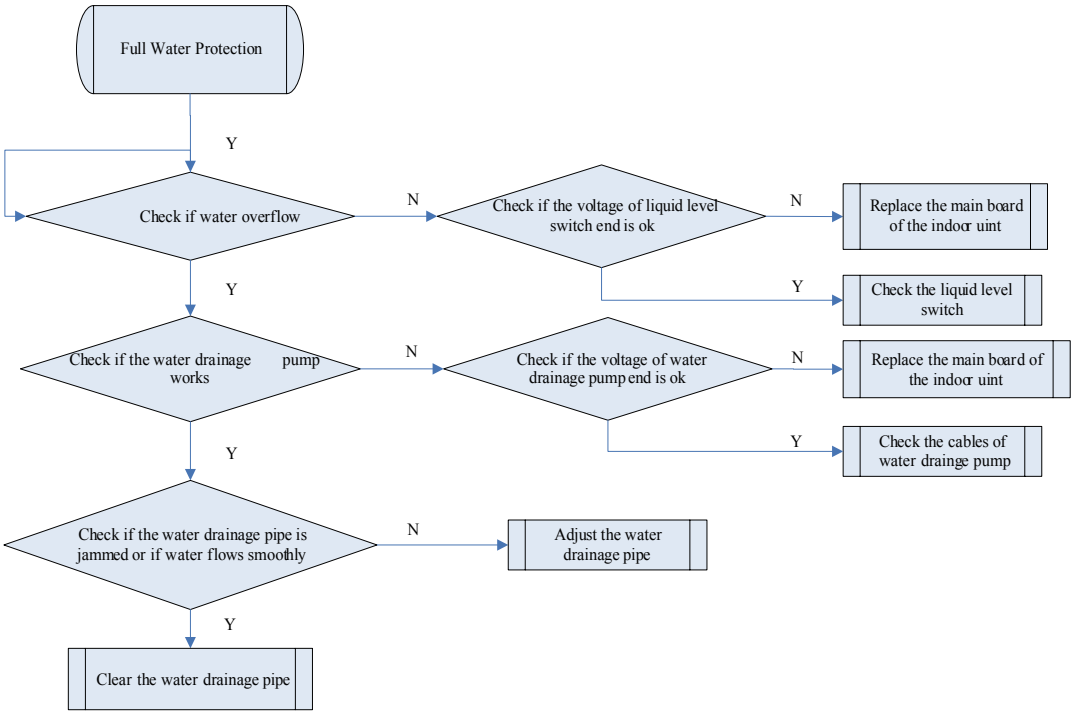
◆ Malfunction display: E4 Compressor Exhaust High Temperature Protection


Discharge temperature protection
Y
Measure if compressor's discharge temperature has reached115?
N
Measure if temperature sensor's resistance value is correct
N
Replace relevant discharge temperature sensor
Y
Y
System pipeline leaks so complementation is needed. Please add refrigerant according to the amount specified in the nameplate
Replace the outdoor unit mainboard

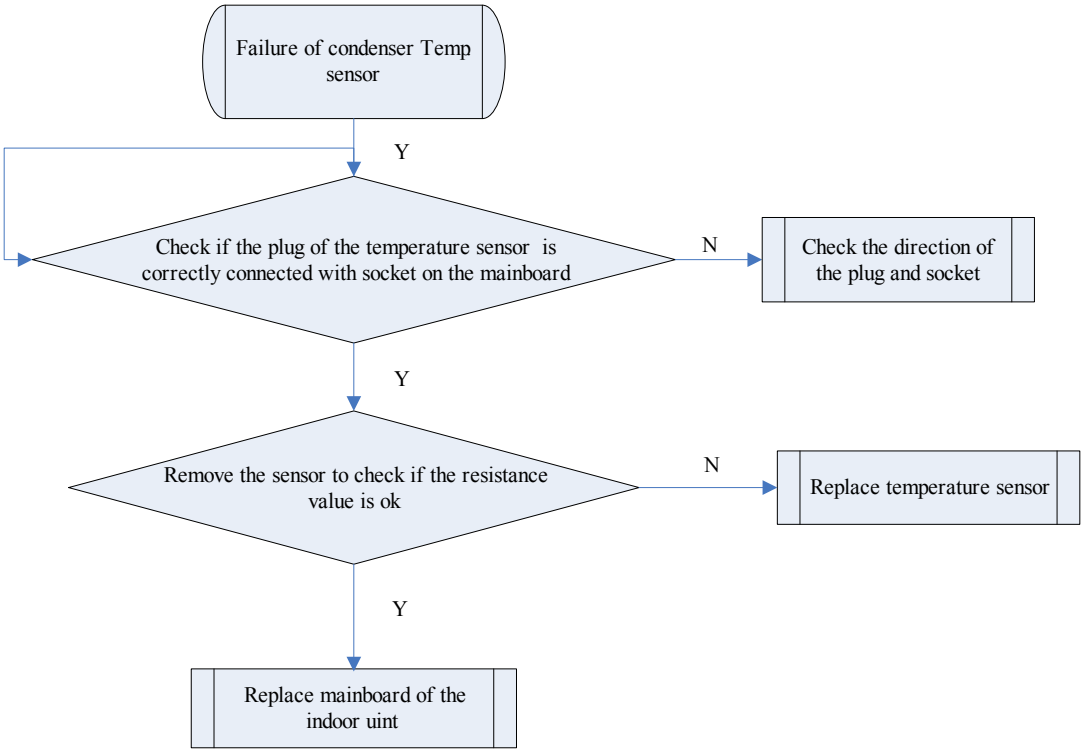
◆ Malfunction display: E5 Compressor Overheat



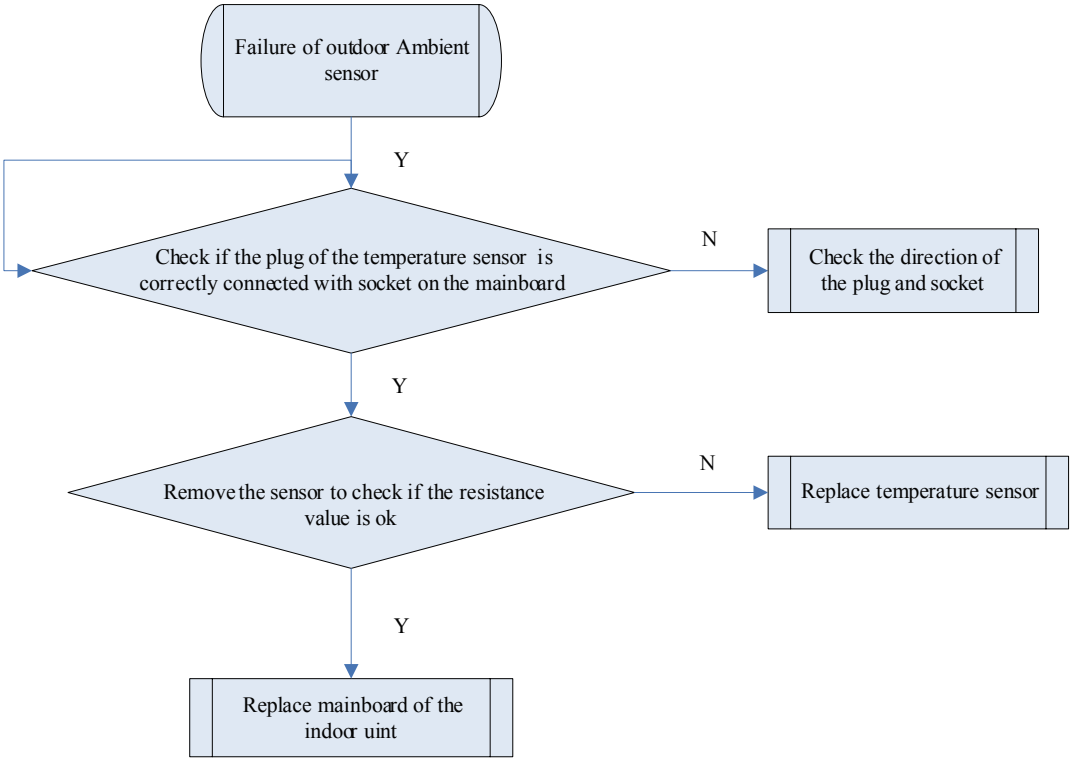
◆ Malfunction display: E9 Full Water Protection


Full Water Protection
Y
Check if water overflow
N
Check if the voltage of liquid level switch end is ok
N
Replace the main board of the indoor uint
Y
Check the liquid level switch
Y
Check if the water drainage pump works
N
Check if the voltage of water drainage pump end is ok
N
Replace the main board of the indoor uint
Y
Check the cables of water drainge pump
Y
Check if the water drainage pipe is jammed or if water flows smoothly
N
Adjust the water drainage pipe
Y
Clear the water drainage pipe

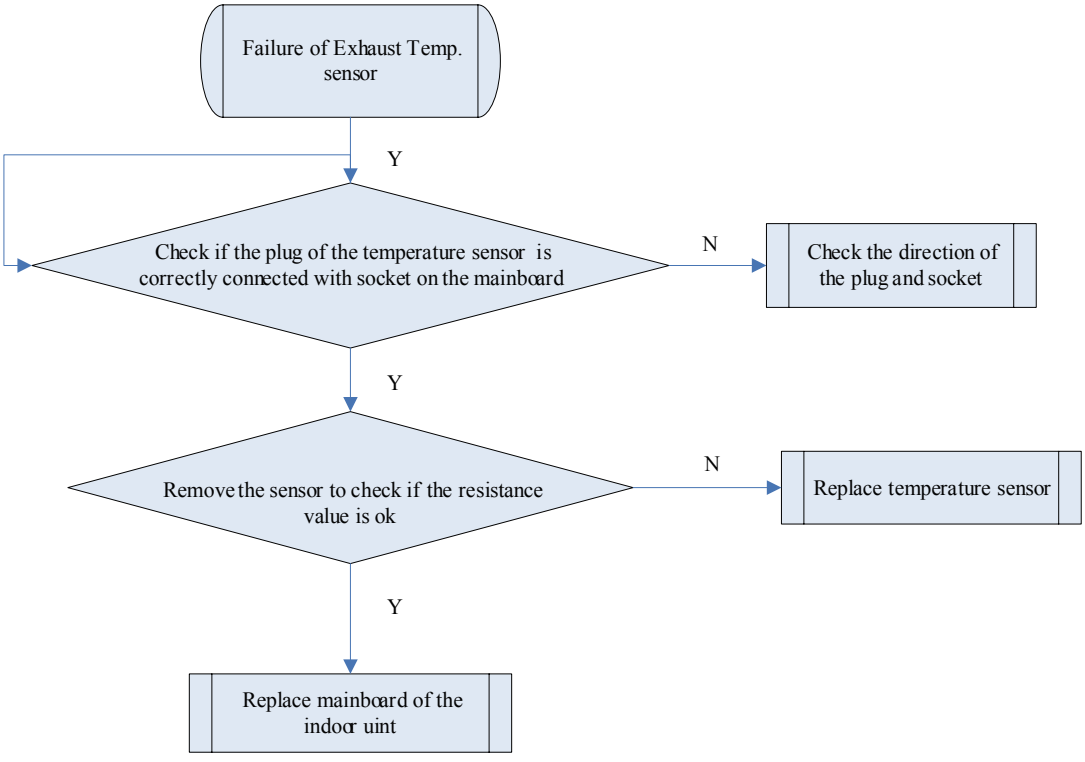
◆ Malfunction display: F2 Failure of Evaporator Temp. Sensor


Failure of condenser Temp sensor
Y
Check if the plug of the temperature sensor is correctly connected with socket on the mainboard
N
Check the direction of the plug and socket
Y
Remove the sensor to check if the resistance value is ok
N
Replace temperature sensor
Y
Replace mainboard of the indoor uint

◆ Malfunction display: F3 Failure of Outdoor Ambient Sensor


Failure of outdoor Ambient sensor
Y
Check if the plug of the temperature sensor is correctly connected with socket on the mainboard
N
Check the direction of the plug and socket
Y
Remove the sensor to check if the resistance value is ok
N
Replace temperature sensor
Y
Replace mainboard of the indoor uint

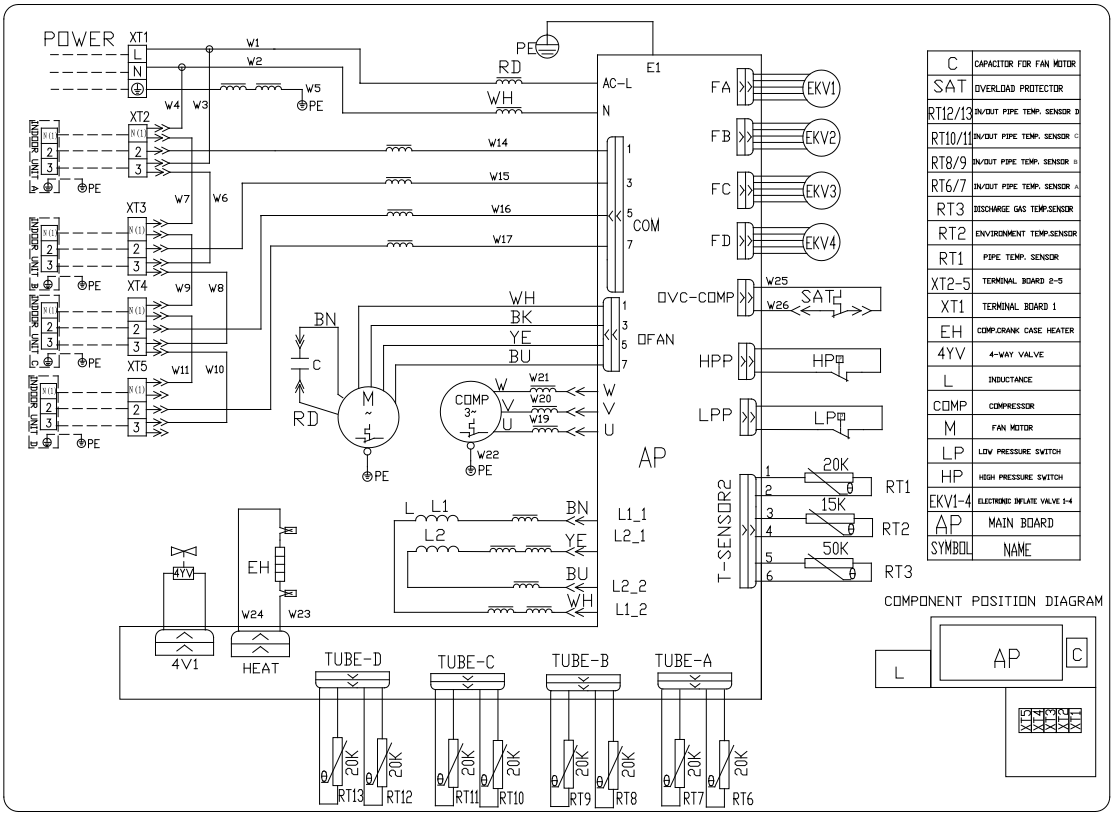
◆ Malfunction display: F5 Failure of Exhaust Temp. Sensor


Failure of Exhaust Temp. sensor
Y
Check if the plug of the temperature sensor is correctly connected with socket on the mainboard
N
Check the direction of the plug and socket
Y
Remove the sensor to check if the resistance value is ok
N
Replace temperature sensor
Y
Replace mainboard of the indoor uint

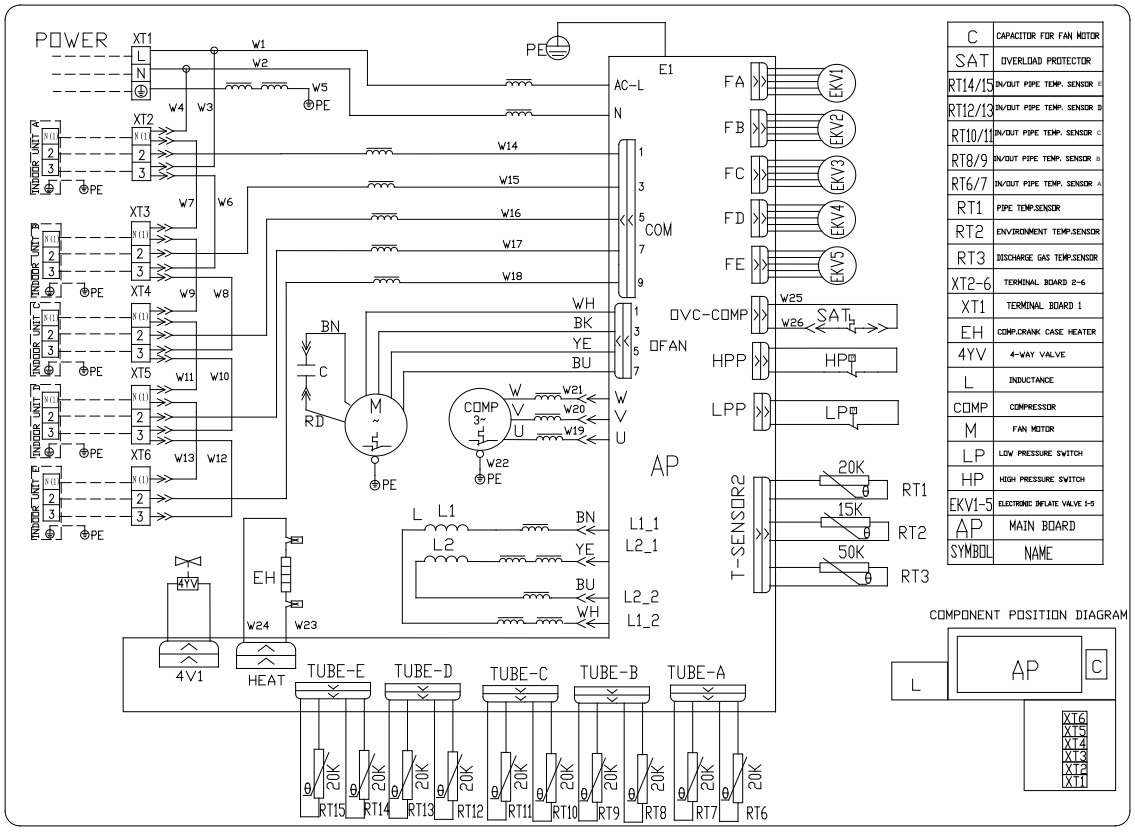
3 WIRING DIADRAM

3.1 Outdoor unit

MC-E36AI

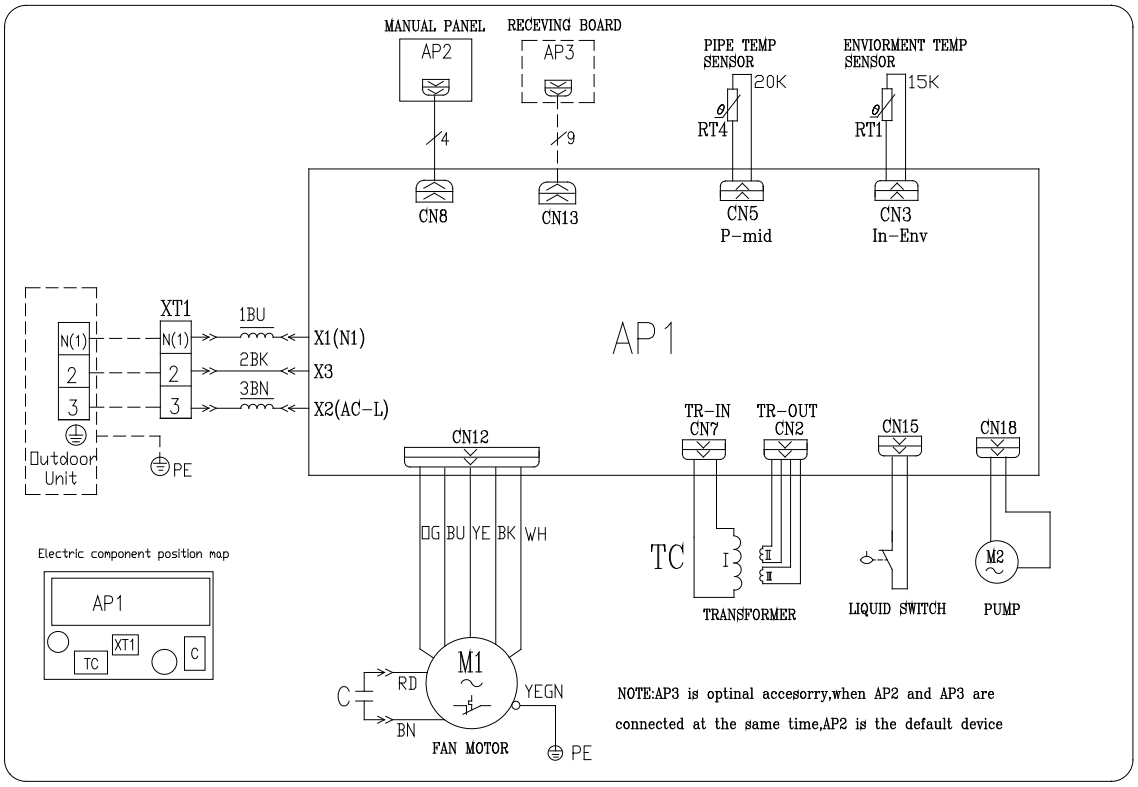


MC-E42AI

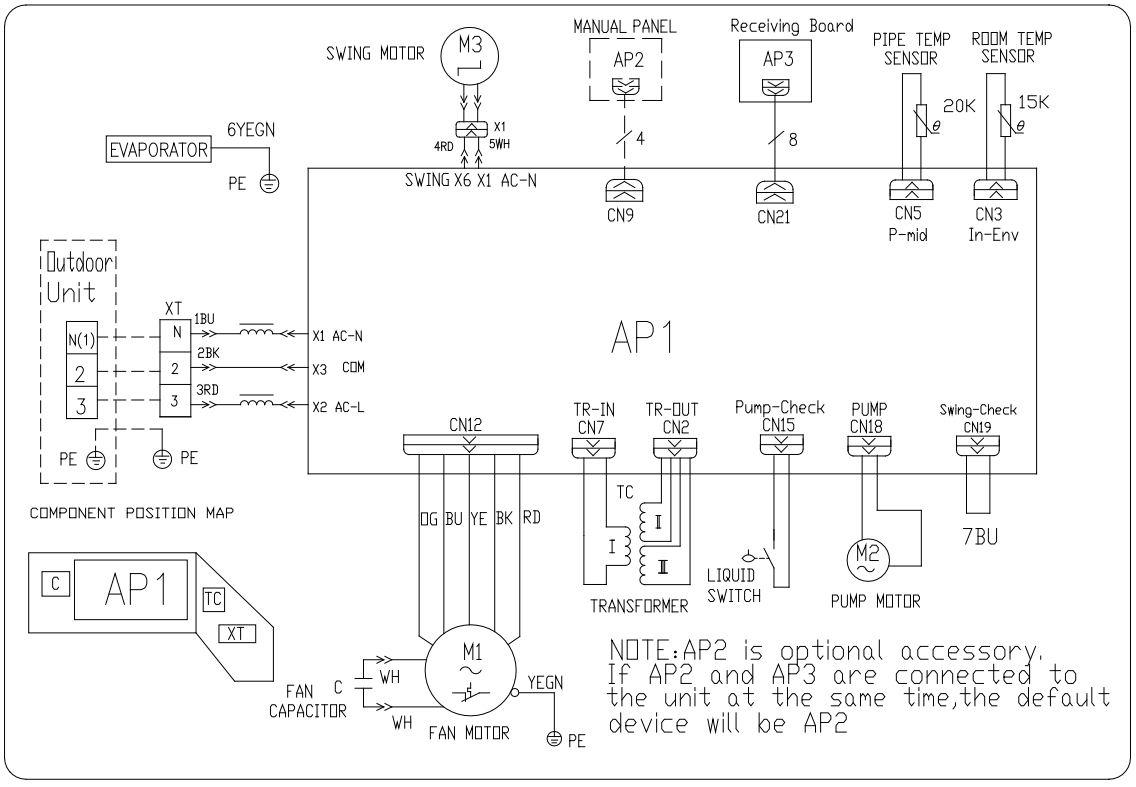


3.2 Indoor unit

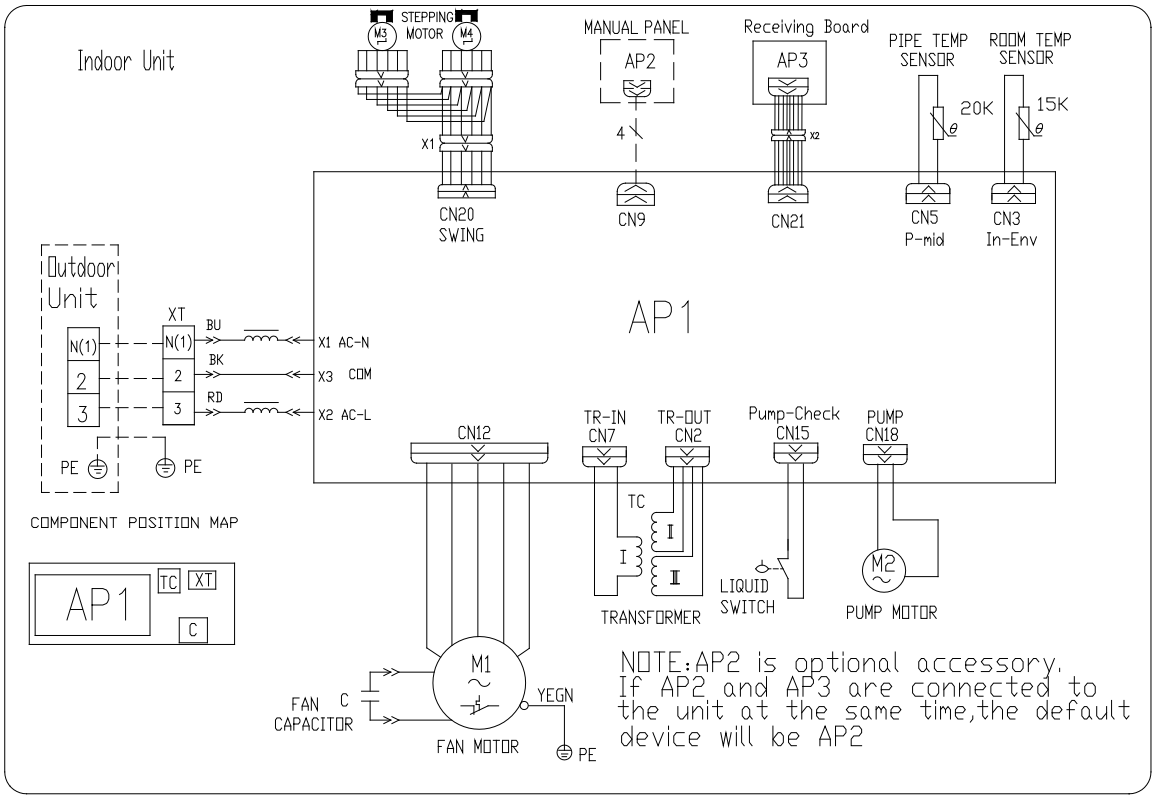
3.2.1Duct type



3.2.2 Cassette type MC-C24AI

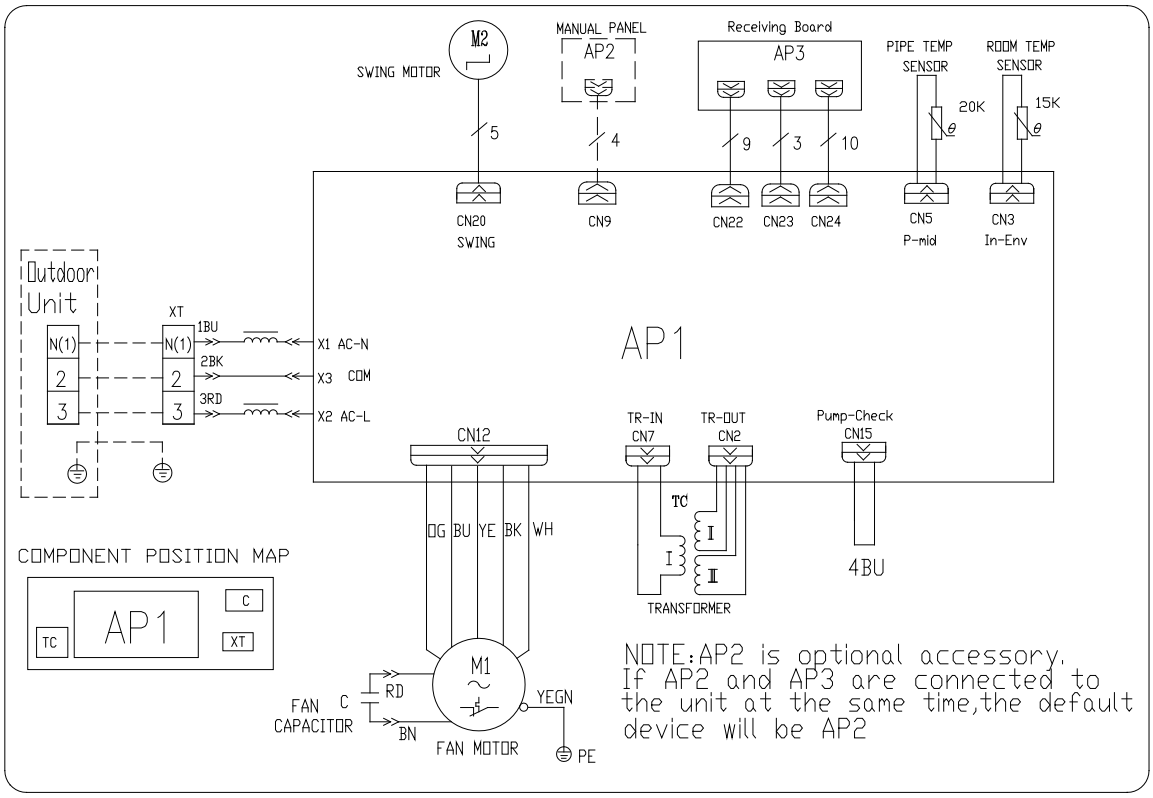


MC-12AI, MC-C18AI



3.2.3 Floor ceiling type

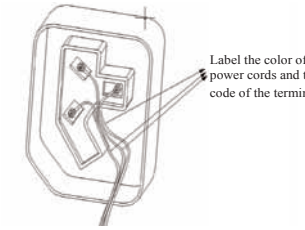
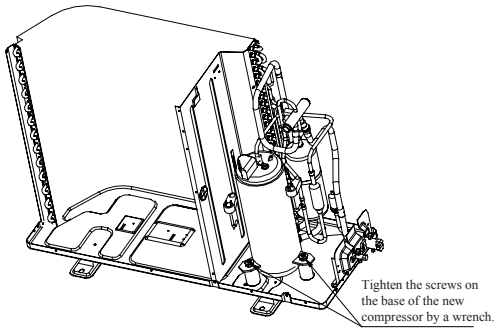
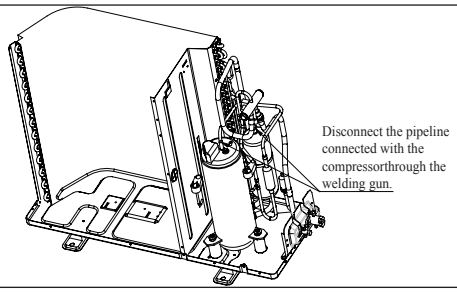
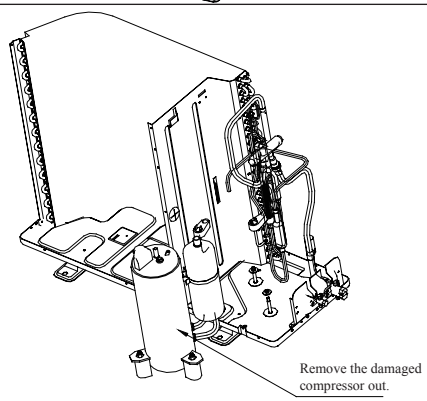
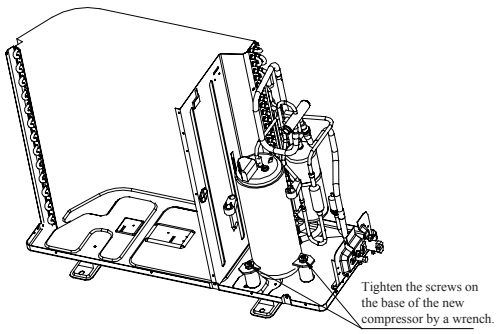
MC-F09AI, MC-F12AI, MC-F18AI, MC-F24AI

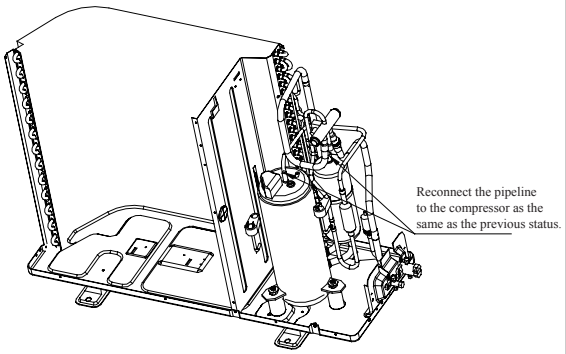
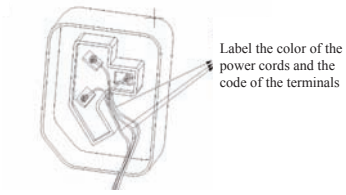


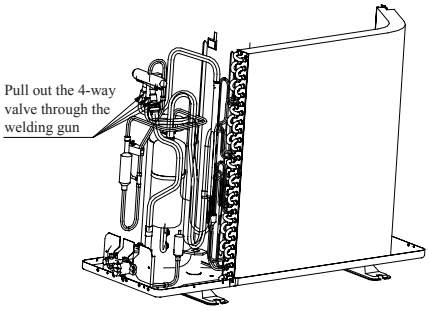
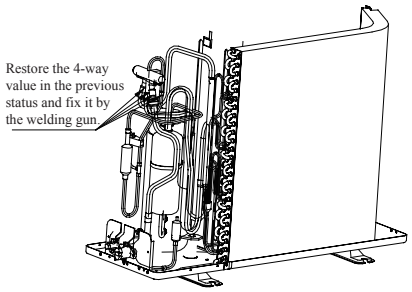
4 DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS

4.1 Outdoor Unit

Side Discharge Indoor Unit

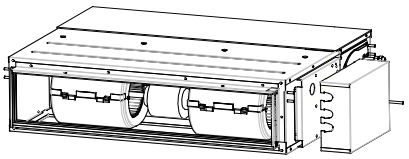
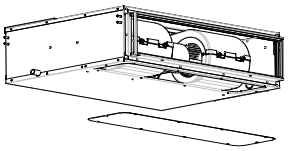
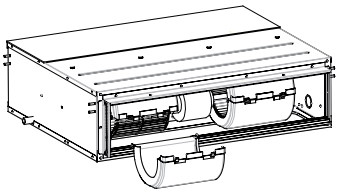
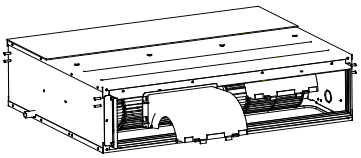
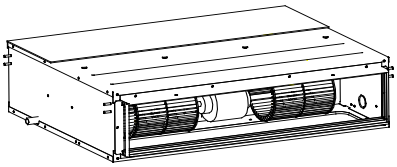
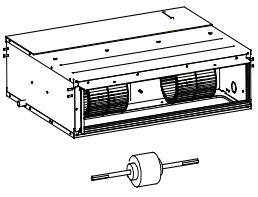
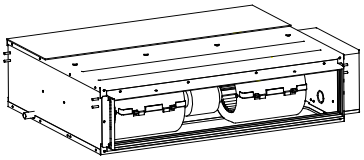
Assembly and Disassembly of the Compressor		
Remarks: Prior to the assembly of the compressor, make sure there is no refrigerant in the pipeline and the power supply is cut off.		
Steps	Illustrations	Operation Instructions
1.Remove the power cords away		●Loosen the screws used to fix the power cord with a screw driver. ●Pull out the power cord. Note: when removing the power cord, please label the power cord and the terminals to avoid misconnecting next time.
2.Loosen the screws used to fix the base of the compressor		●Loosen the screws on the base of the compressor with a wrench.
3.Separate the compressor with the connecting pipe		● Burn the joint of the connecting pipe of the compressor. ●Pull out the connecting pipe. Note: neverr let the flame contact any other componnet.
4.Remove the compressor away from the seating.		●Remove and replace the compressor Note: never let the flame touch any other component during the replacement.
5.Fix the new compressor on the seating.		● Tighten the screws on the seating of the new compressor

6.Connect the pipeline with the suction and discharge ports of the compressor		●Burn the joint of the connecting pipe and then connect the pipeline wit the compressor. Note: never let the flame touch any other component.
7. Reconnect the power cord		● Tight the screws used to fix the power cord with a screwdriver. ●Reconnect the power cord. Note: reconnect the power cord in accordance with the labeled color and terminals.
8.Put the electric heating belt and the discharge temperature sensor etc. in place.		
9.Check if the compressor runs reversely and if the lubricant leaks.		

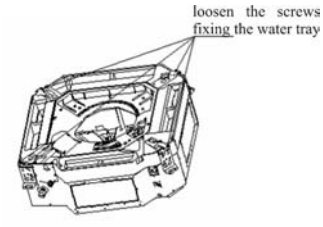
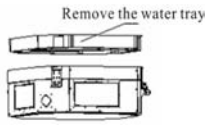
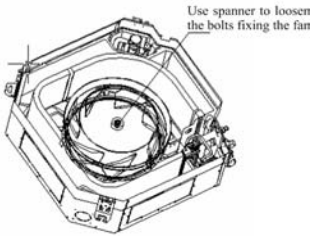
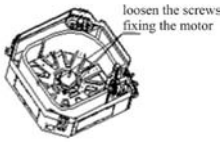
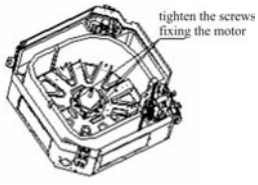
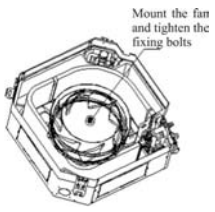
Assembly and Disassembly of the 4-Way Valve		
Steps	Illustrations	Operation Instructions
1. Take out the coil of the 4-way valve.	/	●Loosen the screws used to fix the coil of the 4-way valve with a screw driver
2. Separate the 4-way valve away from the connecting pipe.		●Burn the four joints of the 4-way valve with a welding gun and then pull out the connecting pipe. Note: never let the flame touch any other component.
3. Replace the 4-way valve and reconnect the 4-way valve with the connecting pipe.		●Replace the 4-way valve and weld the four joints of the 4-way valve with a welding gun. Note: never let the flame touch any other component.
4. Put the coil of the 4-way valve in place.	/	●Tighten the screws used to fix the coil of the 4-way valve with a screwdriver

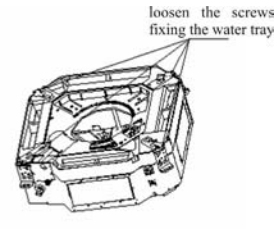
4.2 Indoor Unit

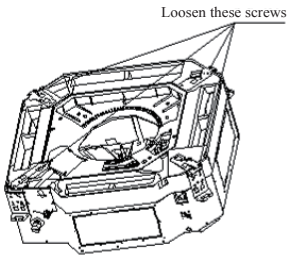
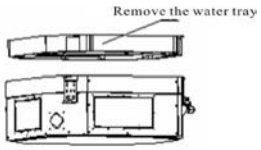
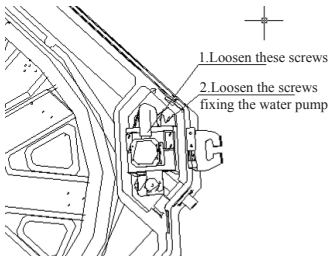
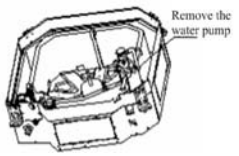
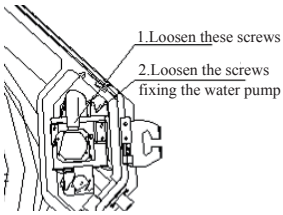
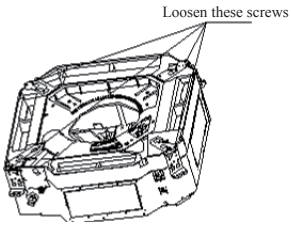
4.2.1Duct type

Assembly and Disassembly of the Electric Fan		
Remarks: Prior to the assembly and disassembly, make sure the power supply is cut off.		
Steps	Illustrations	Operation Instructions
1.Pull out the electric wire of the motor.		● Cut off the power supply of the indoor unit, open the cover plate of the electric box and then pull out the electric wire inside the box.
2.Remove the cover plate for return air.		●Loosen the screws used to fixed the cover plate for return air with a screwdriver.
3. Remove the rear volute		● Undo the buckle of the rear and front volutes and then remove the rear volute away.
4. Remove the front volute		● Loosen the screws used to fix the front volute and then remove it away.
5. Loosen the fan blade and fan motor		●Loose the screws used to fix the fan blades and then undo the buckle used to fix the motor.
6.Remove the motor away.		● Separate the motor always from the motor frame, remove the fan blade, and lastly take the motor out from the return air frame. As for the motor
7. Repalce the motor.		● Assemble the fan as the reverse disassembly order and then take a power-on test.

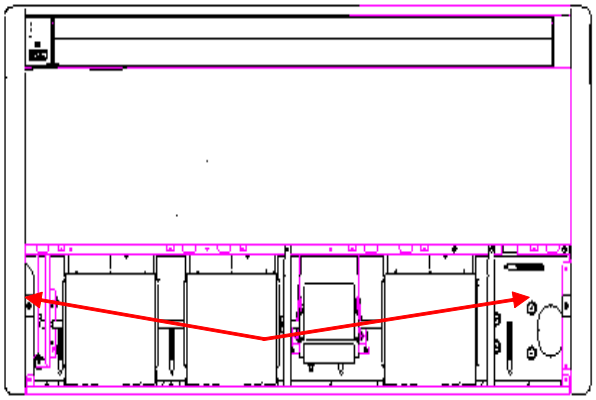
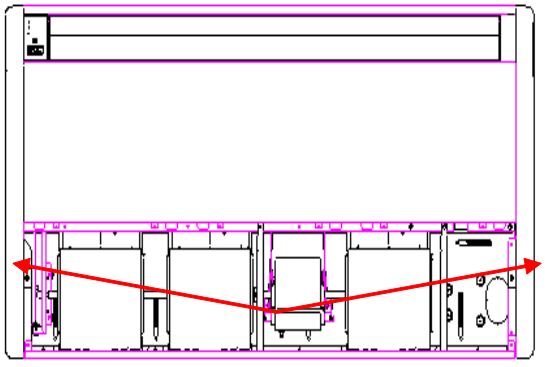
4.2.2 Cassette type

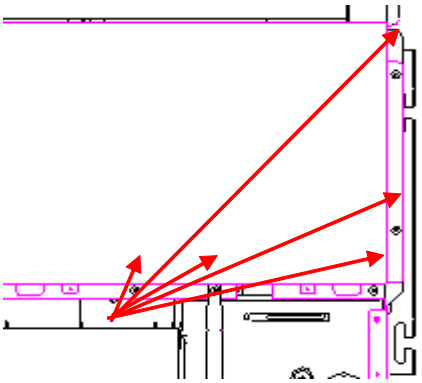
Removal and Assembly of Fan Motor		
Step	Illustration	Handling Instruction
1. Loosen the screws fixing the water tray		●Use screwdriver to loosen the screws fixing the water tray
2. Remove the water tray		●Remove the water tray
3. Loosen the bolts fixing the fan		●Use spanner to loosen the bolts fixing the fan.
4. Remove the fan		●Remove the fan
5. Loosen the screws fixing the motor		●Use screwdriver to loosen the screws fixing the motor
6. Remove the motor and replace it		●Remove the motor and replace it
7. Tighten the screws fixing the motor		●Use screwdriver to tighten the screws fixing the motor.
8. Mount the fan and tighten the fixing bolts		●Mount the fan and use spanner to tighten the bolts fixing the fan.

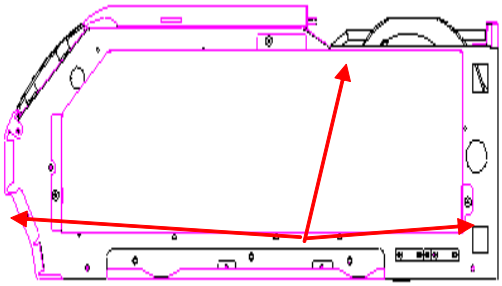
9. Mount the water tray and tighten the screws		●Use screwdriver to loosen the screws fixing the water tray

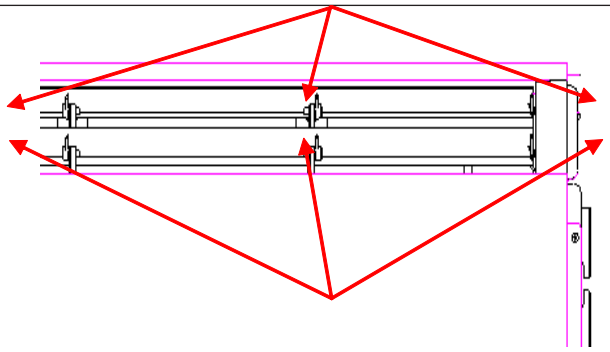
emoval and Installation of Drainage Pump		
Step	Illustration	Handling Instruction
1. Loosen the screws fixing the water tray		●Use screwdriver to loosen the screws fixing the water tray
2. Remove the water tray		●Remove the water pump and replace it.
3. Pull out the water outlet pipe and loosen the screws fixing the water pump.		●Pull out the water outlet pipe and use screwdriver to loosen the screws fixing the water pump.
4. Take out the pump and replace it		●Take out the pump and replace it
5. Connect the drainage pipe and tighten the screws fixing the water pump.		●Connect the drainage pipe and use screwdriver to tighten the screws fixing the water pump.
6. Mount the water tray and tighten the screws		●Use screwdriver to loosen the screws fixing the water tray

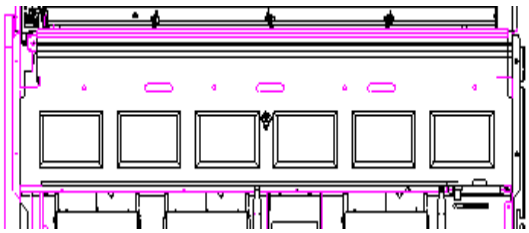
4.2.3 Floor ceiling type

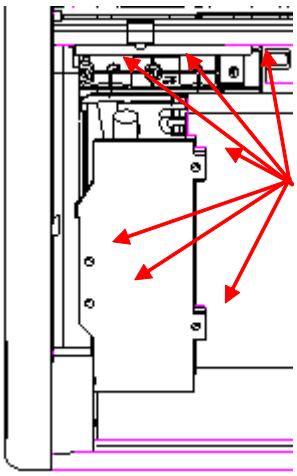
<table>
<tr><td colspan="3">Remove panel grating module</td></tr>
<tr><td colspan="3">Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly. Do not put filter screen near the high temperature heat source.</td></tr>
<tr><td>Step</td><td>Illustration</td><td>Handling Instruction</td></tr>
<tr><td>Remove sub-assy of front grill</td><td> </td><td>●Move down the clip of the sub-assy of fromt grill until the front grill is open. (As is shown in the graph, arrow represents the position of bottons. There are two clips for each grating.)</td></tr>
<tr><td colspan="3">Remove right and left finishing plates</td></tr>
<tr><td colspan="3">Remark: Make sure the power supply is cut off before disassembling and protect all the parts during disassembly. Do not scratch the outer parts.</td></tr>
<tr><td>Step</td><td>Illustration</td><td>Handling Instruction</td></tr>
<tr><td>Remove right and left finishing plates</td><td>  </td><td>●Remove the screws as shown in the graph with screwdriver and then push upward to remove the right and left finishing plates.(As is shown in the graph, arrow represents the position of screws.)</td></tr>
<tr><td>Remove right and left finishing plates</td><td>  </td><td>●Remove the screws as shown in the graph with screwdriver and then push upward to remove the right and left finishing plates.(As is shown in the graph, arrow represents the position of screws.)</td></tr>
</table>

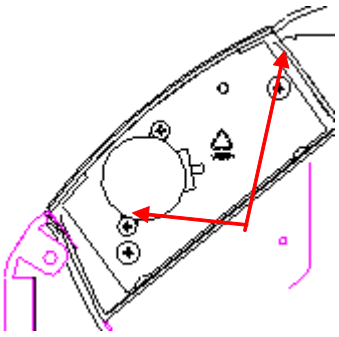
Remove panel parts		
Remark: Make sure the power supply is cut off before disassembling and protect all the parts during disassembly. Do not scratch the outer parts.		
Step	Illustration	Handling Instruction
Remove panel parts		●Remove the screws shown by the arrow in the graph with screwdriver (two on both right and left and 4 in the front) and then remove the panel parts.

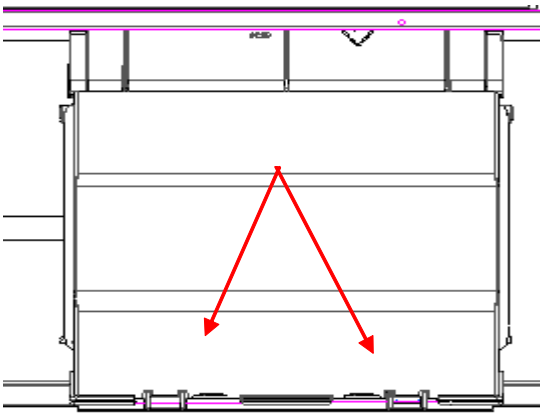
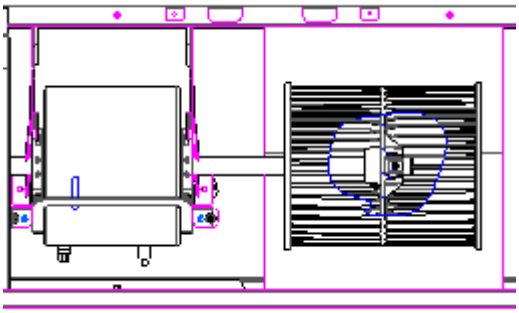
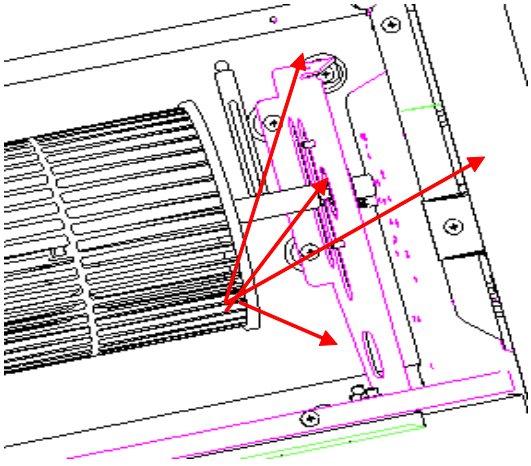
Remove sub-assy of electric box		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly, especially the components inside the box in case of water and hit.		
Step	Illustration	Handling Instruction
1. Remove electric box cover		●Remove 3 screws as shown by the arrow in the graph on left and remove the electric box cover.

Remove air deflecting plate modules		
Remark: Make sure the power supply is cut off before disassembling and protect all the parts during disassembly, especially the joints of the air deflecting plate.		
Step	Illustration	Handling Instruction
Remove sub-assy of air deflecting plate		●Remove the air deflecting plates from the air deflecting plate support assembly, and then remove both ends from the air sweeping motor joint. (As is shown in the graph, arrow represents the support assembly and circle the air sweeping motor joint.)

Remove water-containing plate modules		
Remark: Make sure the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
Remove water-containing plate modules		●Remove the water-containing plate modules.

Remove evaporator components		
Remark: Make sure that the power supply is cut off and protect the copper tube and aluminum fin. If the time for disassembly shall be long, seal the copper tube.		
Step	Illustration	Handling Instruction
Remove evaporator components		●Remove the screws as shown by the arrow in the graph with screwdriver. (There are 6 screws on left and right of the evaporator and 5 on evaporator outlet press plate modules)

Remove fixing plate sub-assy for air sweeping fans		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
Remove fixing plate sub-assy for air sweeping fans		●Remove the screws shown in the graph with screwdriver.

Remove fan and motor components		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly, especially the fastening screws for fans.		
Step	Illustration	Handling Instruction
1. Remove front and back scroll cases		●Press the buckle at the joints of front and back scroll cases with hands and pull upward to remove the front scroll case. Then remove the screws on the back scroll case. Lift the buckle of back scroll case with hands and remove it.(As is shown in the graph, circle represents 2 screws on left and right.)
2. Remove fans		●Remove the fixing screws of fan wheel with inner hexagonal and remove the wheel. The inner hexagonal and its direction of effect are shown by the arrow in the graph.
3. Remove bearing fixing plates		●Remove 4 screws on the bearing fixing plates with screwdriver. (As shown in the box in the graph)

PARTS GUIDE

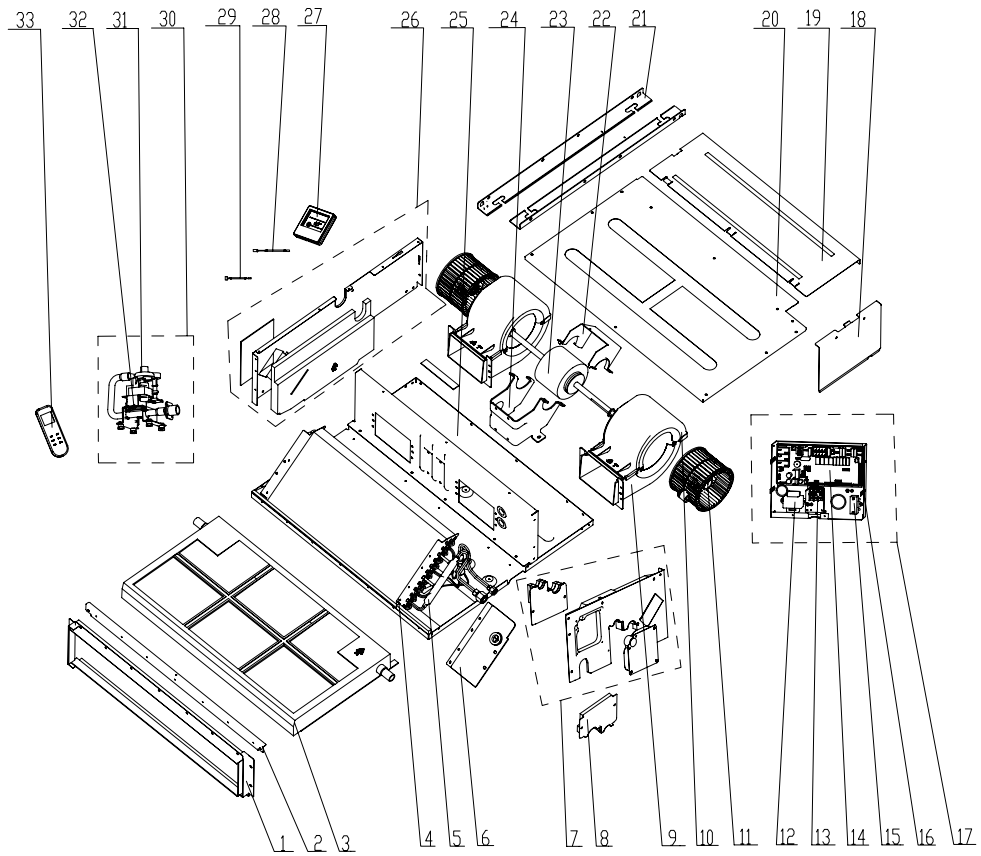
MULTI COMBI

OUTDOOR AND INDOOR UNITS

CASSETTE, FLOOR&CEILING, DUCT UNITS OUTDOOR UNITS

sinclair
AIR CONDITIONING

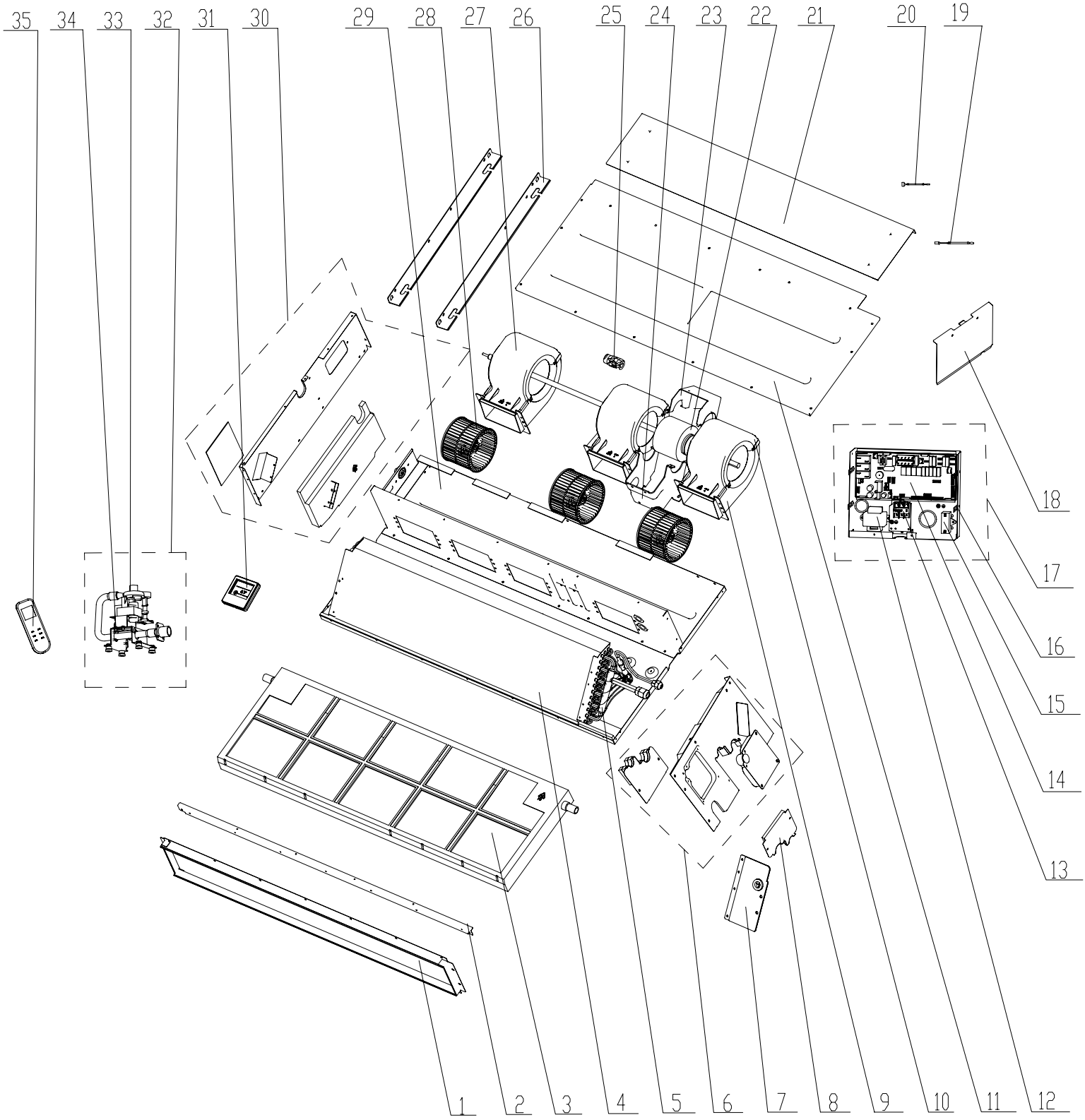
Exploded view of model: MC-D09AI, MC-D12AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-D09AI, MC-D12AI					
1	Air outlet frame assy	01865216		1	
2	Cover of Air Outlet	01265298		1	
3	Water Tray Assy	01285332		1	
4	Top Cover Assy	01265325		1	
5	Evaporator Assy	01024266		1	
6	Sealplate sub-assy (evaporator)	01495317		1	
7	Left Side Plate Assy	01315334		1	
8	Seal of Letout Pipe Assy	01495316		1	
9	Front volute casing	26905205		2	
10	Rear volute casing	26905206		2	
11	Centrifugal fan	10425200		2	
12	Transformer 48X26G	43110233		1	
13	Terminal Board	420111041		1	
14	Main Board Z6325L	30226338		1	
15	Capacitor CBB61 1.5uF 450V	33010020		1	
16	Electric Box Sub-Assy	01395100		1	
17	Electric Box Assy	01395980		1	
18	Electric Box Cover	01424253		1	
19	Cover Of Fan Motor	01265300		1	
20	Bottom Cover	01265299		1	
21	Supporter	01895225		2	
22	Bar Clasp sub-assy	70815201		1	
23	Fan Motor FG30A	1570520102		1	
24	Supporter	01805288		1	
25	Fan Mounting Plate Assy	01325312		1	
26	Right Side Plate Assy	01315335		1	
27	Display Board Z63351L	30296317		1	
28	Temperature Sensor	390001982G		1	
29	Ambient Temperature Sensor	39000206		1	
30	Water Pump Assy	15405241		1	
31	Water Level Switch	45010201		1	
32	Water Pump	43130324		1	
33	Remote Controller YT1F(XFAN)	305100492		1	
	Choke Plug of Drain Pipe	76815214		2	
	Drain Hose Assy	05232703		1	
	Jumper	4202300123		1	
	Connecting Cable (4X1.0)	40020523		1	

The data are subject to change without notice.

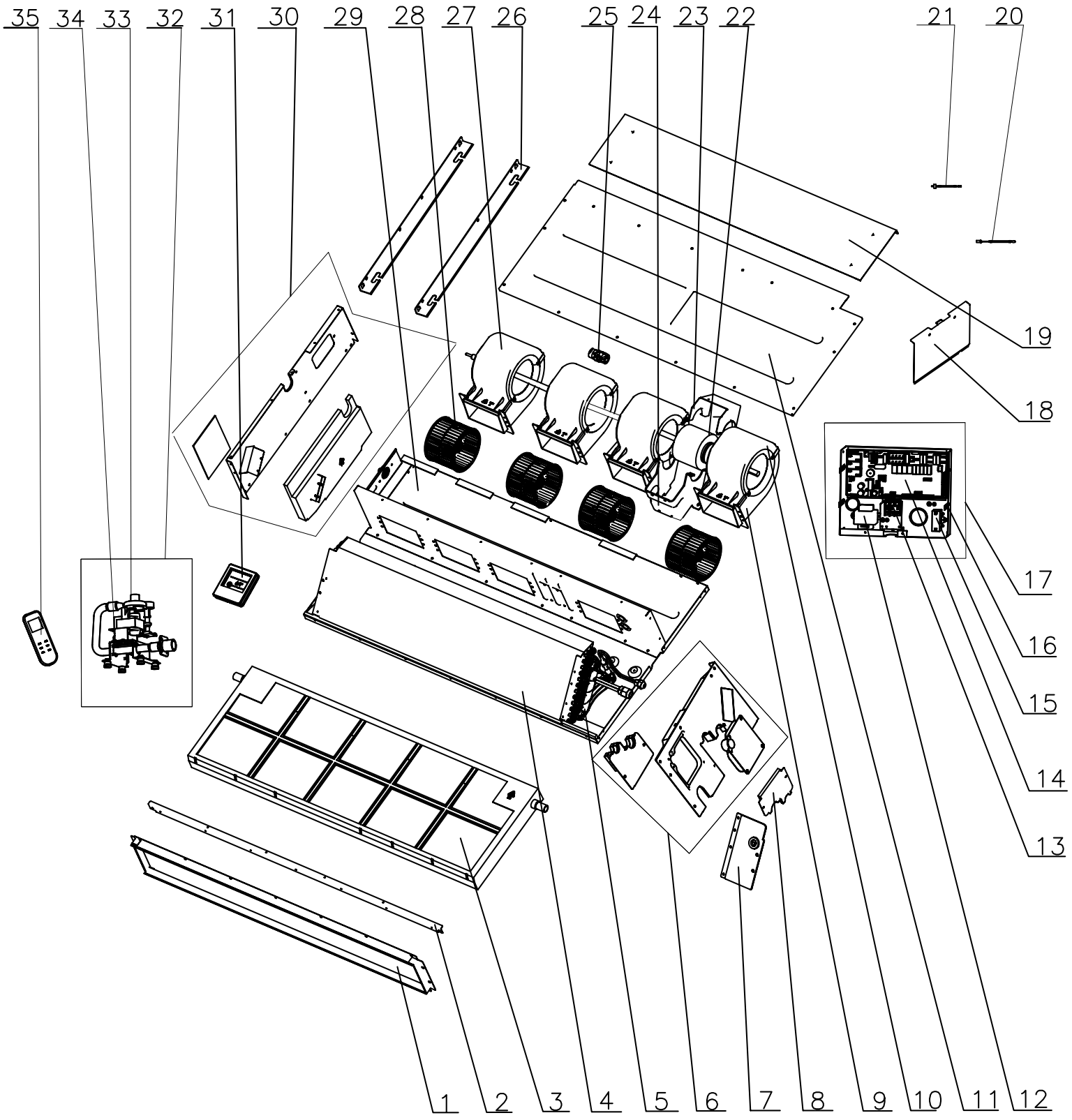
Exploded view of model MC-D18AI, MC-D21AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-D18AI, MC-D21AI					
1	Air outlet frame assy	01865217		1	
2	Cover of air outlet	01265331		1	
3	Water Tray Assy	01285333		1	
4	Evaporator Assy	01024268		1	
5	Top Cover Board Assy	01265328		1	
6	Left Side Plate Assy	01315334		1	
7	Sealplate sub-assy (evaporator)	01495317		1	
8	Seal of Letout Pipe Assy	01495316		1	
9	Front volute casing	26905205		3	
10	Rear volute casing	26905206		3	
11	Bottom Cover Plate	01265332		1	
12	Transformer	43110233		1	
13	Terminal Board	420111041		1	
14	Main Board Z6325L	30226338		1	
15	Capacitor CBB61 3uF 450V	33010027		1	
16	Electric Box Sub-Assy	01395100		1	
17	Electric Box Assy	01395984		1	
18	Electric Box Cover	01424253		1	
19	Temperature Sensor	390001982G		1	
20	Ambient Temperature Sensor	39000206		1	
21	Cover Plate of the Fan	01265333		1	
22	Fan Motor FG60A	15705218		1	
23	Bar Clasp sub-assy	70815201		1	
24	Supporter	01805288		1	
25	Joint Slack	73018731		1	
26	Supporter	01895225		2	
27	Rotary Axis Sub-Assy	73018020		1	
28	Centrifugal fan	10425200		3	
29	Fan Mounting Plate Assy	01325314		1	
30	Right Side Plate Assy	01305263		1	
31	Display Board Z63351L	30296317		1	
32	Water Pump Assy	15405241		1	
33	Water Level Switch	45010201		1	
34	Water Pump	43130324		1	
35	Remote Controller YT1F(XFAN)	305100492		1	
	Jumper	4202300125		1	
	Drain Hose Assy	05232703		1	
	Choke Plug of Drain Pipe	76815214		2	
	Connecting Cable	400205232		1	

The data are subject to change without notice.

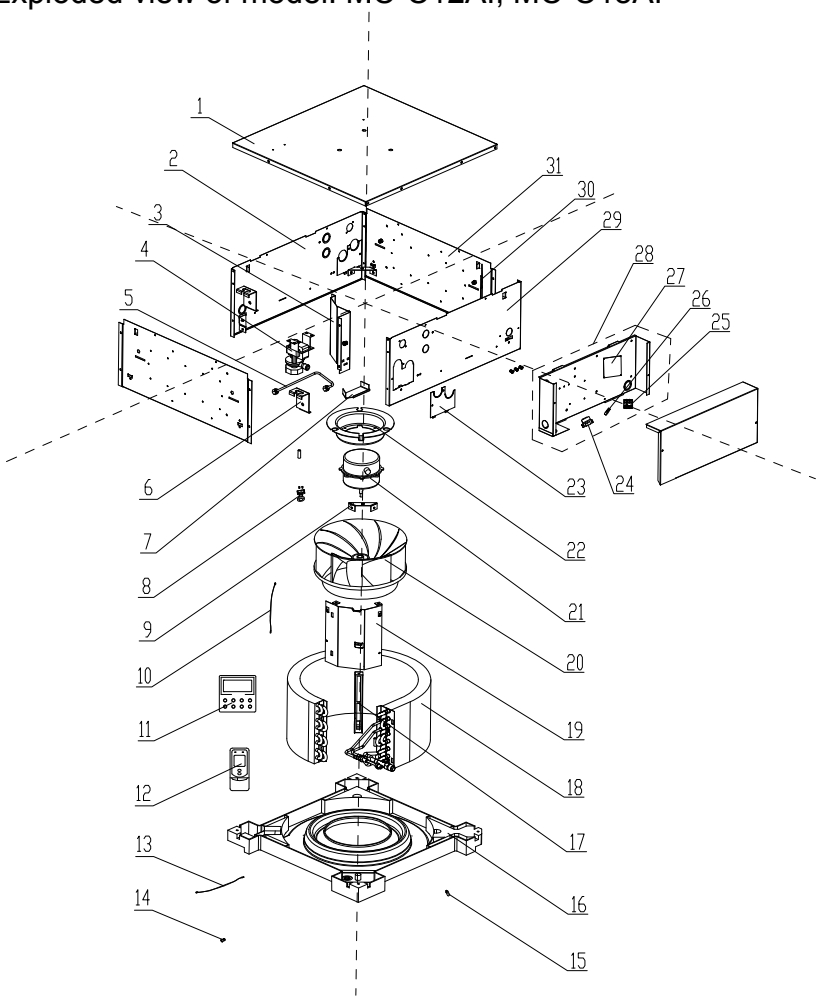
Exploded view of model:MC-D24AI



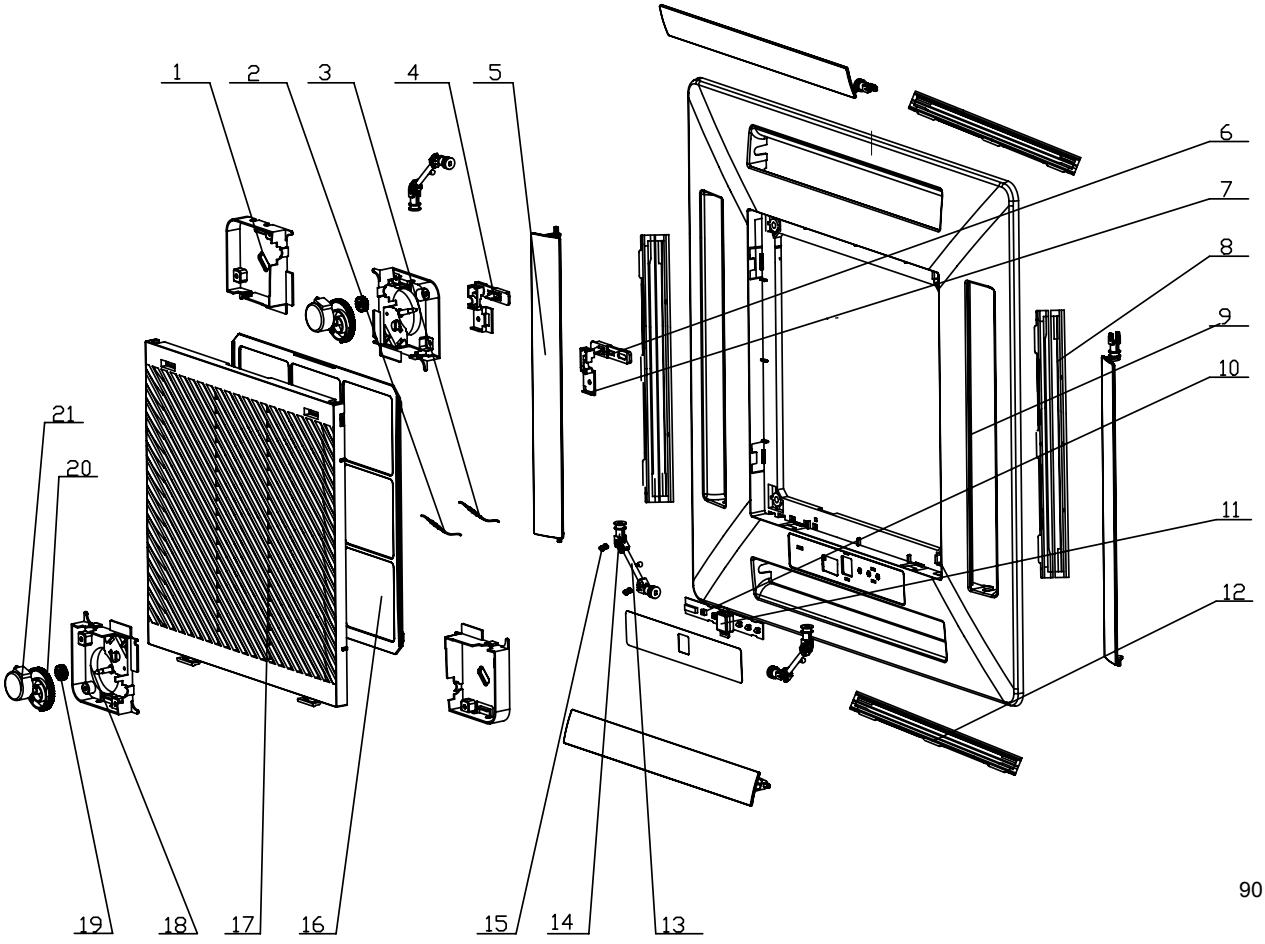
No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-D24AI					
1	Air outlet frame assy	01375224		1	
2	Cover Of Air-Out	01265335		1	
3	Water Tray Assy	01285334		1	
4	Evaporator Assy	01024269		1	
5	Top Cover Assy	01265339		1	
6	Left Side Plate Assy	01315334		1	
7	Sealplate sub-assy (evaporator)	01495317		1	
8	Seal of Letout Pipe Assy	01495316		1	
9	Front volute casing	26905205		4	
10	Rear volute casing	26905206		4	
11	Bottom Cover	01265337		1	
12	Transformer	43110233		1	
13	Terminal Board	420111041		1	
14	Main Board Z6325L	30226338		1	
15	Capacitor CBB61	33010027		1	
16	Electric Box Sub-Assy	01395100		1	
17	Electric Box Assy	01395985		1	
18	Electric Box Cover	01424253		1	
19	Cover Of Fan Motor	01265338		1	
20	Ambient Temperature Sensor	39000206		1	
21	Temperature Sensor	390001982G		1	
22	Fan Motor FG20E	1570411102		1	
23	Bar Clasp sub-assy	70815201		1	
24	Supporter	01805288		1	
25	Joint Slack	73018731		1	
26	Supporter	01895225		2	
27	Rotary Axis Sub-Assy	73018022		1	
28	Centrifugal fan	10425200		4	
29	Fan Mounting Plate Assy	01325316		1	
30	Right Side Plate Assy	01305263		1	
31	Display Board Z63351L	30296317		1	
32	Water Pump Assy	15405241		1	
33	Water Level Switch	45010201		1	
34	Water Pump	43130324		1	
35	Remote Controller YT1F(XFAN)	305100492		1	
	Filter Sub-Assy ϕ16	07210028		1	
	Filter	07212001		1	
	Connecting Cable	400205232		1	

The data are subject to change without notice.

Exploded view of model: MC-C12AI, MC-C18AI



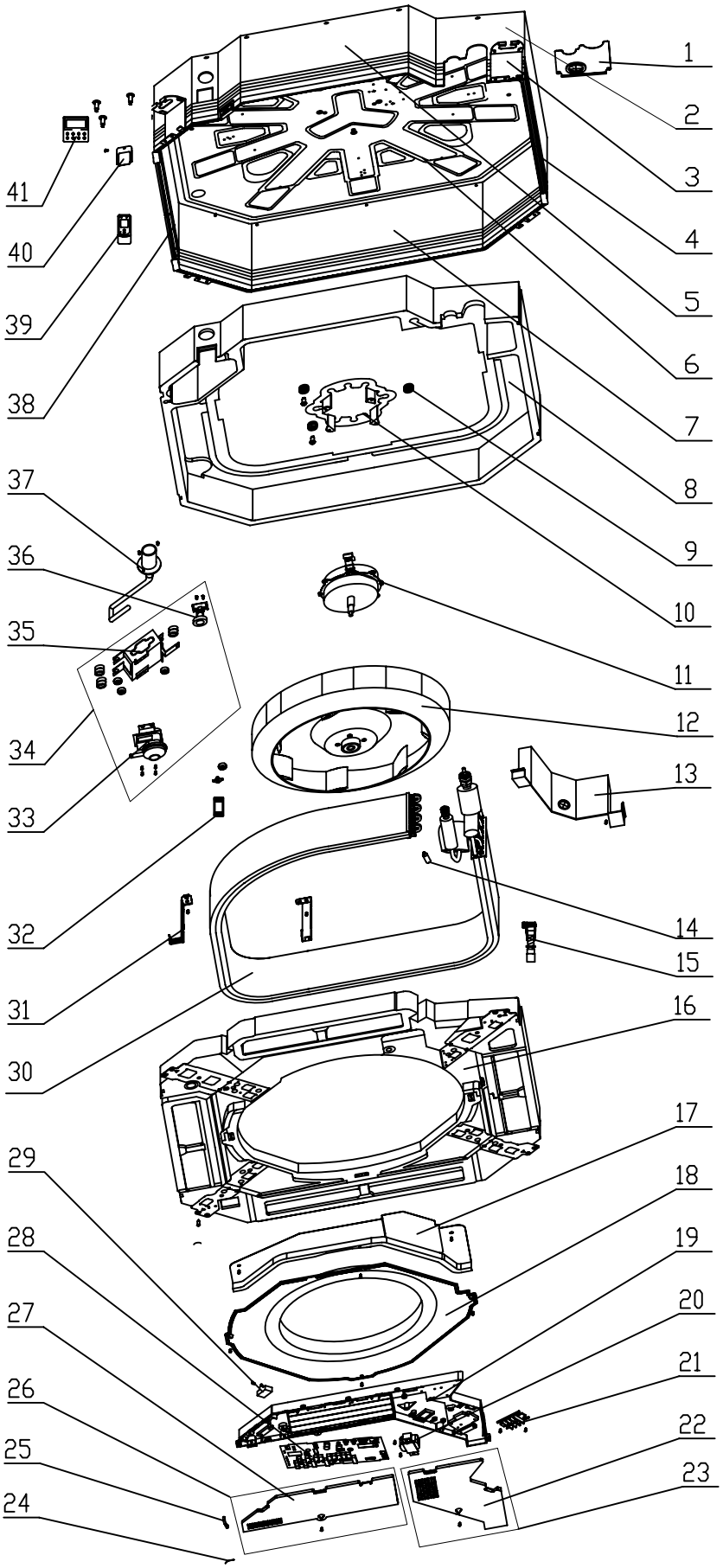
Exploded view of panel for cassette MC-C12AI, MC-C18AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-C12AI, MC-C18AI					
1	Seat Board Sub-Assy	01222712		1	AQ
2	Front Side Plate	01314211		1	AN
3	Right baffle Assy	01362704		1	AM
4	Water Pump PSB-7	43130320		1	BA
5	Pump Drainpipe	05232722		1	AD
6	Major Mounting Rack	01332705		4	AG
7	Pump Support Assy	01332708		1	BC
8	Water Level Switch	450127011		1	AM
9	Water Tray Support	01332706		4	AE
10	Temperature Sensor	390001982G		1	AD
11	Display Board Z63351L	30296317		1	AZ
12	Remote Controller YT1F(XFAN)	305100492		1	AT
13	Ambient Temperature Sensor	3900019813		1	AD
14	Filter Sub-Assy	11120012		1	AC
15	Filter Sub-Assy	11120011		1	AC
16	Water Tray Assy	20182704		1	BB
17	Evaporator Support	01072714		1	AE
18	Evaporator Assy	01024307	12	1	BH
		0102430701	18	1	BH
19	Evaporator Connection Board	01072713		1	AE
20	Centrifugal Fan	10312702		1	AW
21	Fan Motor FN11T-1	15704114		1	AX
22	Motor Support	01702702		1	AH
23	Tube Exit Plate Assy	01382719		1	AC
24	Transformer 48X26F	43110226		1	AK
25	Terminal Board	420111041		1	AD
26	Capacitor CBB61 2.5uF 450V	33010026		1	AE
27	Main Board Z6325P	30226354		1	AY
28	Electric Box Assy	01399534		1	AZ
29	Front Side Plate	01302741		1	AM
30	Pass WirePlate	01362701		1	AC
31	Right Side Plate Sub-Assy	01302743		2	AM
	Signal Wire	40030079		1	AE
	Pump Gasket 1	76712707		1	AC
	Pump Gasket 2	76712708		1	AC
	Water Level Switch Support	24212705		1	AC
	Motor Gasket	76712705		3	AC
MODEL: PANEL MC-C12AI, MC-C18AI					
1	Inner Conner Cover 2	22242716		1	AE
2	Connecting Wire	40030022		1	AE
3	Connecting Wire	400300791		1	AE
4	Right Net Hook	26252706		1	AB
5	Guide Louver	10512702		4	AD
6	Left Net Hook	26252705		1	AB
7	Clamp	26252704		1	AC
8	Air Outlet Foam 1	12312704		4	AH
9	Front Panel	20002704		1	AZ
10	Receiver Board	30261001		1	AH
11	Receiving Window	22432705		1	AE
12	Air Outlet Foam 2	12312705		4	AH
13	Connecting Rod	10582704		2	AD
14	Gimbal	10562704		4	AC
15	Universal Joint	10562703		8	AA
16	Filter Sub-Assy	11122703		1	AD
17	Front Grill Assy	22412706		1	AN
18	Inner Conner Cover 1	22242715		1	AE
19	Little Gear	73012701		1	AC
20	Big Gear	73012702		1	AD
21	Step Motor MP35EA	15210104		1	AK

The data are subject to change without notice.

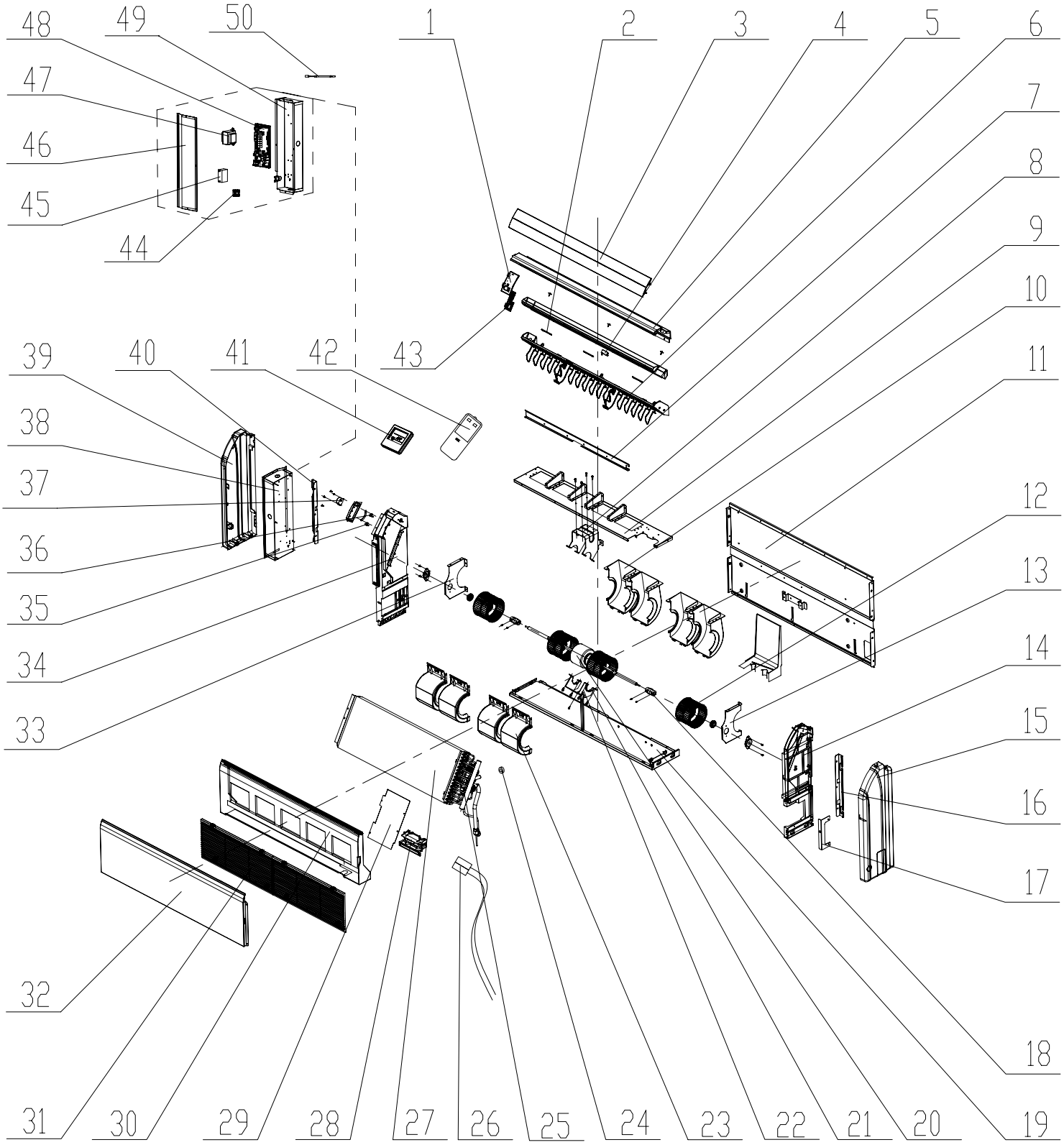
Exploded view of model: MC-C24AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-C24AI					
1	Tube Exit Plate Assy	01382715		1	AD
2	Shell Assy	01432704		1	BA
3	Major Mounting Plate	01332701		4	AC
4	Front Side Plate	01302718		1	AN
5	Left Side Plate Assy	01302715		1	AM
6	Base Plate	01222705		1	AX
7	Rear Side Plate	01302714		1	AM
8	Bottom Foam Assy	52012722		1	AU
9	Motor Gasket	76712711		4	AC
10	Motor Mounting Rack	01702701		1	AH
11	Fan Motor FN35B-1	15704102		1	AZ
12	Centifugal Fan	10312705		1	AX
13	Connection Sheet Assy	01074042		1	AE
14	Filter Sub-Assy φ16	07210028		1	AB
15	Drain Hose Assy	05232702		1	AD
16	Water Tray Assy	20182701		1	BC
17	Electric Box Base Plate	01412721		1	AK
18	Diversion Circle	10372701		1	AM
19	Electric Box Assembly	01399520		1	AZ
20	Transformer 48X26G	43110233		1	AH
21	Terminal Board T360B	42011222		1	AD
22	Electric Box Cover	20102702		1	AD
23	Electric Box Cover Sub-Assy1	20122054		1	AE
24	Ambient Temperature Sensor 15KS-XH-2P-K3(black)-300mm	390000453		1	AD
25	Temperature Sensor	390001982G		1	AD
26	Electric Box Cover Sub-Assy2	20122055		1	AE
27	Electric Box Cover	20102703		1	AD
28	Main Board Z6325M	30226340		1	AY
29	Capacitor CBB61 3uF 450V	33010027		1	AE
30	Evaporator Assy	01004641		1	BH
31	Evaporator of Fixed Mount	01072703		2	AD
32	Magnetic Ring	49010104		1	AC
33	Water Pump	43130324		1	BC
34	Water Pump Assy	01332752		1	BE
35	Pump Support	01332702		1	AE
36	Water Level Switch	45010201		1	AR
37	Drain Pipe for Water Pump	05230026		1	AD
38	Right Side Plate	01302716		1	AM
39	Remote Controller YT1F(XFAN)	305100492		1	AT
40	Pump Backup Cover Plate Assy	01252713		1	AD
41	Display Board Z63351L	30296317		1	AZ

The data are subject to change without notice.

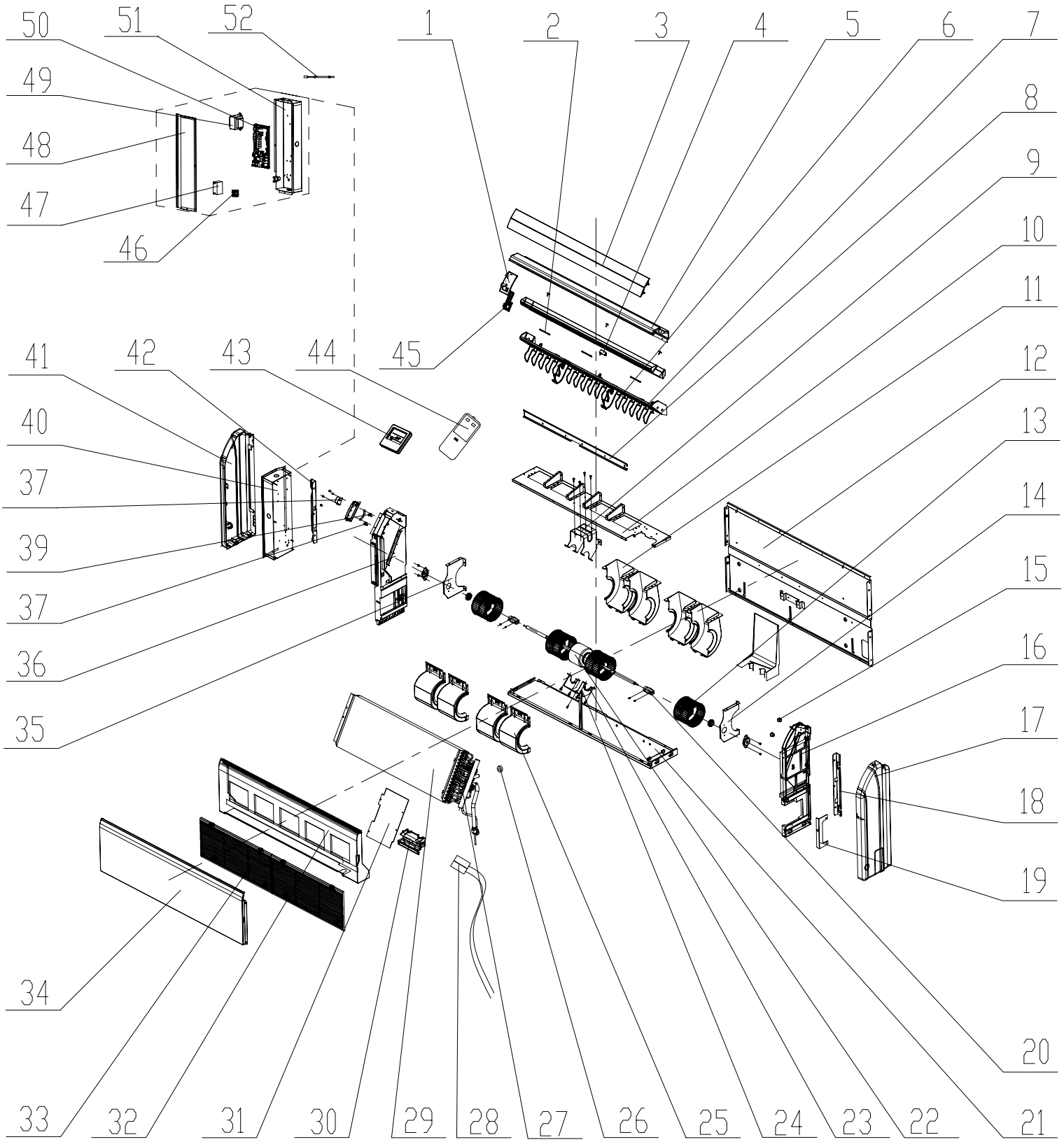
Exploded view of model MC-F09AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-F09AI, MC-F12AI					
		09	12		9/12
1	Fixed Mount	26909426R		1	AE
2	Louver Clamp	26112127		2	AB
3	Guide Louver	10619403		2	AH
4	Rotating Shaft	26909430		4	AB
5	Front Connection Board	01349414P		1	AN
6	Base Frame	26909448		1	AK
7	Induced air plate subassembly	02229418		1	AE
8	Supporter	26909449		2	AD
9	Mid-clapboard sub-assy	01249427	01249416	1	AE
10	Front volute casing	26905205		4	AH
11	Rear side plate assy	01319445	01319430	1	AX
12	Centrifugal fan	10425200		4	AR
13	Supporter	01809417		1	AG
14	Right Side Plate Sub-Assy	01319429		1	AK
15	Right Cover Plate	26909444		1	AL
16	Left Pensile Bracket	01809401		1	AD
17	Connection Board	01344115		1	AE
18	Joint Slack	73018731		2	AG
19	Rear Connection board	01349416		1	AS
20	Fan Motor FG10A	1570940901		1	BA
21	Bar Clasp	70818405		1	AD
22	Bar Clasp sub-assy	70815201		1	AD
23	Rear volute casing	26905206		4	AE
24	Cable-Cross Loop	76510021		4	AC
25	Filter	07216221		1	AD
26	Temperature Sensor	390001978G	3900020723	1	AD/AE
27	Evaporator Assy	01029482	01029475	1	BG
28	Fixed Plate	26909442		1	AF
29	Connection Board	02229406		1	AC
30	Water Tray Assy	01289404		1	BB
31	Front Grill sub-assy	01579403		2	AH
32	Top Cover Board Sub-assy	01269409		1	AU
33	Supporter	01809418		1	AG
34	Left Side Plate Sub-Assy	0131942801		1	AQ
35	Rotating Shaft	26909412		1	AB
36	Rotating Shaft	26909413		1	AB
37	Step Motor MP35CG	1521240206		1	AG
38	Electric Box Assy	01399517		1	AZ
39	Left Cover Plate	26909443		1	AL
40	Right Pensile Bracket	01809402		1	AD
41	Display Board Z63351L	30296317		1	AZ
42	Remote Controller YT1F(XFAN)	305100492		1	AT
43	Display Board Z4G25A	30294220		1	AR
44	Terminal Board	420111041	42010178	1	AD/AF
45	Capacitor CBB61	33010089		1	AE
46	Electric Box Cover	01429420		1	AF
47	Transformer 57X25C	4311023701		1	AK
48	Main Board Z6325N	30226350		1	AY
49	Electric Box	01429419		1	AH
50	Temperature Sensor 20KT-XH-2P(red)	3900019822	39000191	1	AD
	Air Louver	10619404		16	AC
	Connecting Rod	26909411			AC
	Drainage Pipe Sub-assy	05235434			AD
	Supporter	01805288			AN
	Axile Bush	10542704			AB

The data are subject to change without notice.

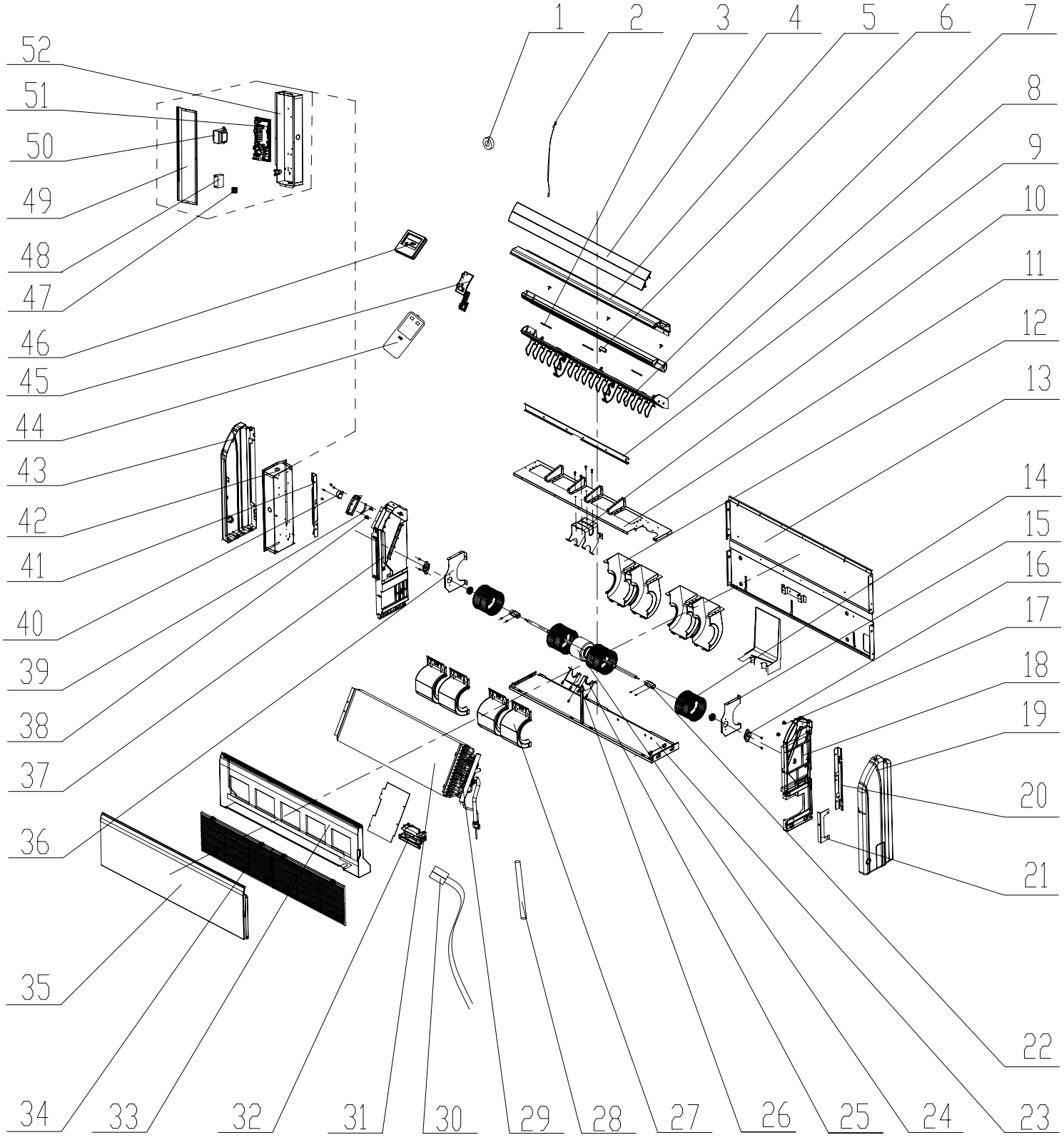
Exploded view of model: MC-F18AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-F18AI					
1	Fixed Mount	26909426R		1	
2	Louver Clamp	26112127		2	
3	Guide Louver	10619403		2	
4	Rotating Shaft	26909430		4	
5	Front Connection Board	01349414P		1	
6	Air Louver	10619404		16	
7	Base Frame	26909448		1	
8	Induced air plate subassembly	02229418		1	
9	Supporter	26909449		2	
10	Mid-clapboard sub-assy	01249416		1	
11	Front volute casing	26905205		4	
12	Rear side plate assy	01319430		1	
13	Centrifugal fan	10425200		4	
14	Supporter	01809417		1	
15	Axile Bush	10542704		2	
16	Right Side Plate Sub-Assy	01319429		1	
17	Right Cover Plate	26909444		1	
18	Left Pensile Bracket	01809401		1	
19	Connection Board	01344115		1	
20	Joint Slack	73018731		2	
21	Rear Connection board	01349416		1	
22	Fan Motor FG20E	15704111		1	
23	Bar Clasp	70818405		1	
24	Bar Clasp sub-assy	70815201		1	
25	Rear volute casing	26905206		4	
26	Cable-Cross Loop	76510021		4	
27	Filter	07216221		1	
28	Sensor	3900020723		1	
29	Evaporator Assy	01029469		1	
30	Fixed Plate	26909442		1	
31	Connection Board	02229406		1	
32	Water Tray Assy	01289404		1	
33	Front Grill sub-assy	01579403		2	
34	Top Cover Board Sub-assy	01269409		1	
35	Supporter	01809418		1	
36	Left Side Plate Sub-Assy	0131942801		1	
37	Rotating Shaft	26909412		1	
38	Rotating Shaft	26909413		1	
39	Step Motor MP35CG	1521240206		1	
40	Electric Box Assy	01399511		1	
41	Left Cover Plate	26909443		1	
42	Right Pensile Bracket	01809402		1	
43	Display Board Z63351L	30296317		1	
44	Remote Controller YT1F(XFAN)	305100492		1	
45	Display Board Z4G25A	30294220		1	
46	Terminal Board	42010178		1	
47	Capacitor CBB61	33010026		1	
48	Electric Box Cover	01429420		1	
49	Transformer 57X25C	4311023701		1	
50	Main Board Z6325N	30226350		1	
51	Electric Box	01429419		1	
52	Room Sensor 15KS-XH-2P	39000191		1	
	Drainage Pipe Sub-assy	05235434		1	
	Connecting Rod	26909411		1	
	Supporter	01805288		1	

The data are subject to change without notice.

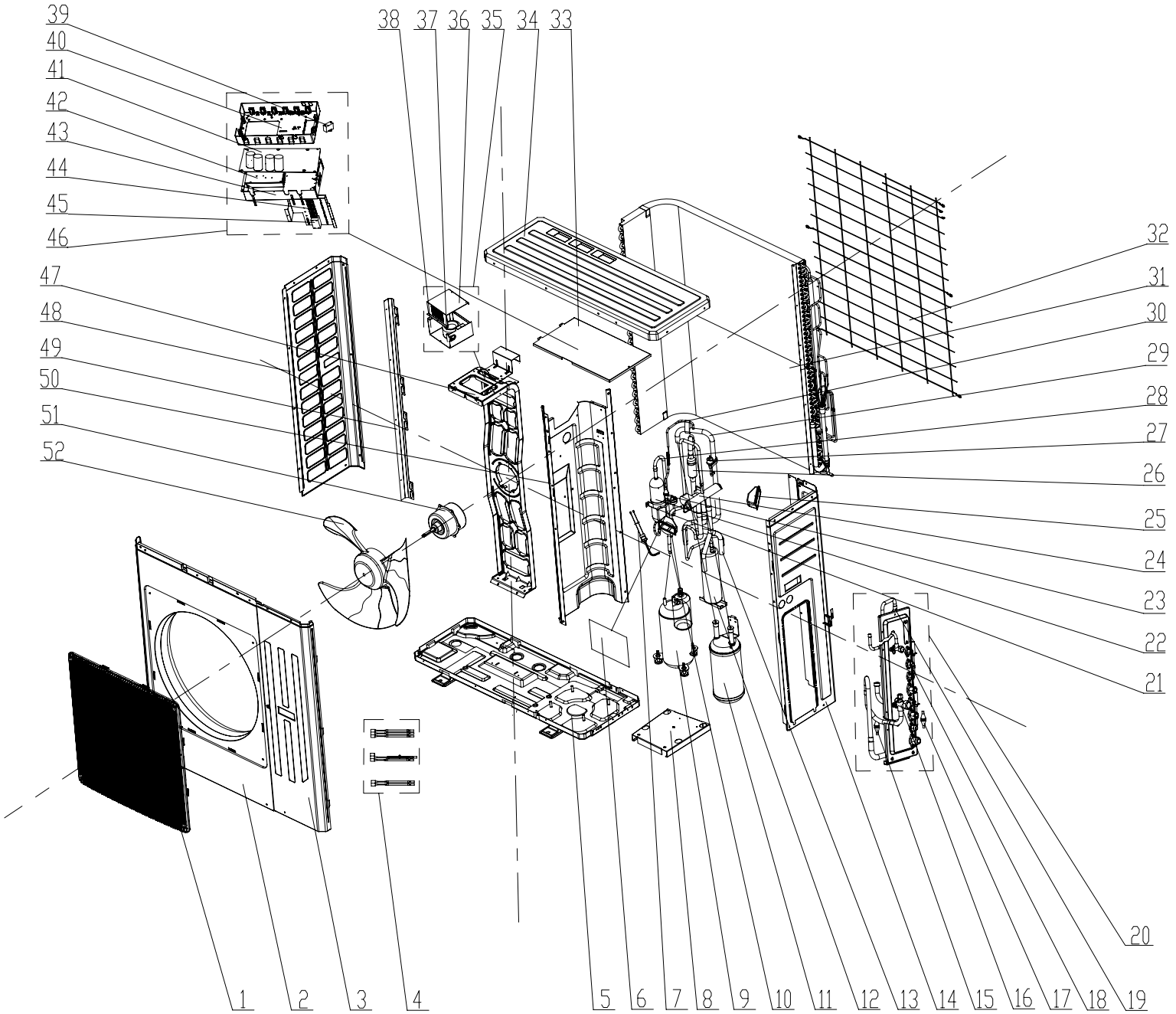
Exploded view of model: MC-F24AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-F24AI					
1	Cable-Cross Loop	76510021		4	
2	Room Sensor 15KS-XH-2P	39000191		1	
3	Louver Clamp	26112127		2	
4	Guide Louver	10619403		2	
5	Front Connection Board	01349414P		1	
6	Rotating Shaft	26909430		4	
7	Air Louver	10619404		16	
8	Base Frame	26909448		1	
9	Induced air plate subassembly	02229418		1	
10	Supporter	26909449		2	
11	Mid-clapboard sub-assy	01249416		1	
12	Front volute casing	26905205		4	
13	Rear side plate assy	01319430		1	
14	Centrifugal fan	10425200		4	
15	Supporter	01809417		1	
16	Support Of Motor Bearing	01792408		2	
17	Axile Bush	10542704		2	
18	Right Side Plate Sub-Assy	01319429		1	
19	Right Cover Plate	26909444		1	
20	Left Pensile Bracket	01809401		1	
21	Connection Board	02229406		1	
22	Joint Slack	73018731		2	
23	Rear Connection board	01349416		1	
24	Fan Motor FG50A	15709409		1	
25	Bar Clasp	70818405		1	
26	Bar Clasp sub-assy	70815201		1	
27	Rear volute casing	26905206		4	
28	Drainage Pipe Sub-assy	05235434		1	
29	Filter	07212001		1	
30	Sensor	3900020723		1	
31	Evaporator Assy	01029474		1	
32	Fixed Plate	26909442		1	
33	Water Tray Assy	01289404		1	
34	Front Grill sub-assy	01579403		2	
35	Top Cover Board Sub-assy	01269409		1	
36	Supporter	01809418		1	
37	Left Side Plate Sub-Assy	0131942801		1	
38	Rotating Shaft	26909412		1	
39	Rotating Shaft	26909413		1	
40	Step Motor MP35CG	1521240206		1	
41	Right Pensile Bracket	01809402		1	
42	Electric Box Assy	01399518		1	
43	Left Cover Plate	26909443		1	
44	Remote Controller YT1F(XFAN)	305100492		1	
45	Display Board Z4G25A	30294220		1	
46	Display Board Z63351L	30296317		1	
47	Terminal Board	42010178		1	
48	Capacitor CBB61	33010027		1	
49	Electric Box Cover	01429420		1	
50	Transformer	4311023701		1	
51	Main Board Z6325N	30226350		1	
52	Electric Box	01429419		1	
	Supporter	01805288		1	
	Connecting Rod	26909411		1	

The data are subject to change without notice.

Exploded view of model: MC-E36AI

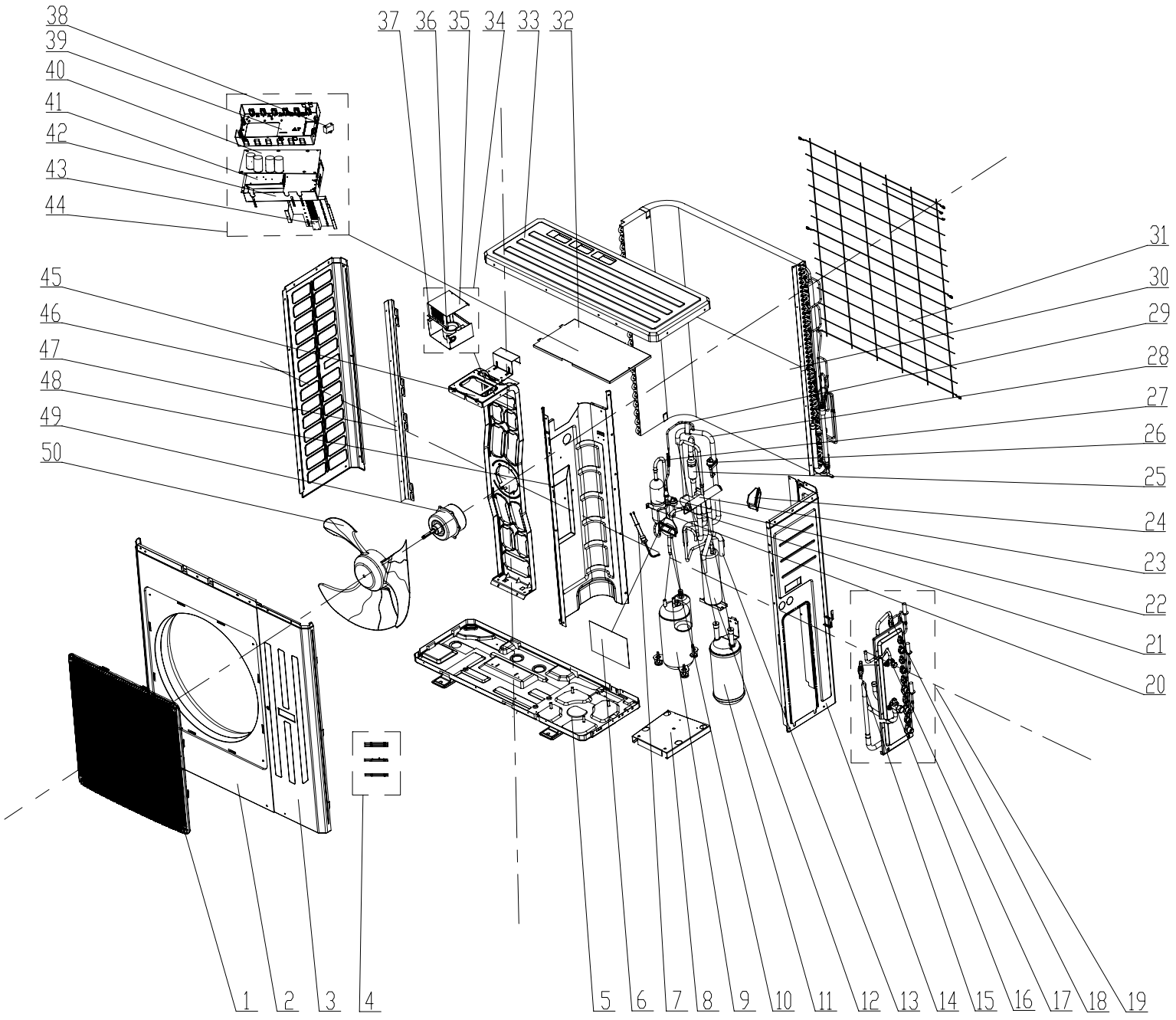


No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-E36AI					
1	Front Grill	22415005		1	
2	Cabinet	01435007P		1	
3	Front Side Plate Sub-Assy	01305508		1	
4	Sensor Sub-assy	3900806601		1	
5	Chassis Sub-assy	01194141P		1	
6	Insulating Plate of Electric box Cover	20113003		1	
7	Pressure Protect Switch	4602001555		1	
8	Compressor Mounting Plate Sub-Assy	01324238P		1	
9	Compressor and fittings	00205230		1	
10	Connection Pipe	05034302		1	
11	Gas-liquid Separator Sub-Assy	07225018		1	
12	Bidirection Accumulator	07228741		1	
13	Connecting Pipe of Ushape	05034290		1	
14	Right Side Plate Sub-Assy	01314304P		1	
15	StrainerA	07210022		1	
16	Cut-off Valve	07334403		1	
17	StrainerA	07210022		1	
18	Cut-off Valve	07334402		1	
19	Filter	07212121		1	
20	Valve Support Assy	01804402		1	
21	oil separator	07228302		1	
22	Clamp	0214000521		1	
23	StrainerA	07210022		1	
24	4-way Valve	43000338		1	
25	Handle	26235253		2	
26	4-way Valve Assy	04144185		1	
27	Pressure Protect Switch	4602000902		1	
28	Discharge Tube Sub-Assy	04634310		1	
29	Inhalation Tube Sub-Assy	04674230		1	
30	Capillary Sub-Assy(Oil Separator)	04104239		1	
31	Condenser Assy	0112417901		1	
32	Rear Grill	01475012		1	
33	Electric Box Cover	01424263		1	
34	Top Cover	0125500901P		1	
35	Electric reactor sub-assy	02404111		1	
36	Cover of Reactor box	01424260		1	
37	PFC Inductance	43128003		1	
38	Reactor Box	01424258		1	
39	Capacitor CBB61	33010009		1	
40	Electric Box	26905211		1	
41	Main Board	30226349		1	
42	Radiator	49018112		1	
43	Electric Box Sub-Assy	02404112		1	
44	Terminal Board	42010270		1	
45	Terminal Board	420111041		4	
46	Electric Box Assy	01395151		1	

No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-E36AI					
47	Motor Support Sub-Assy	01805402		1	
47	Motor Support Assy	01804240		1	
48	Left Side Plate	01305064P		1	
49	Condenser support plate	01895309		1	
50	Clapboard	01244141		1	
51	Fan Motor	1570522801		1	
52	Axial Flow Fan	10335010		1	
	Jumper	4202300109		1	
	Connecting Cable	400205409		1	
	Drainage Joint	26113009		1	
	Electric Expand Valve Fitting	4300876707		1	
	Electric Expand Valve Fitting	4300876708		1	
	Electric Expand Valve Fitting	4300876709		1	
	Electric Expand Valve Fitting	4300876710		1	
	electrical heater	76518732		1	
	Corrugated Pipe φ16	05010051		1	
	Left Handle	26235401		1	
	Magnet Coil	4300040029		1	

The data are subject to change without notice.

Exploded view of model: MC-E42AI



No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-E42AI					
1	Front Grill	22415005		1	
2	Cabinet	01435007P		1	
3	Front Side Plate Sub-Assy	01305508		1	
4	Sensor sub-assy	39008066		1	
5	Chassis Sub-assy	01194141P		1	
6	Insulating Plate of Electric box Cover	20113003		1	
7	Pressure Protect Switch	4602001555		1	
8	Compressor Mounting Plate Sub-Assy	01324238P		1	
9	Compressor and fittings	00205230		1	
10	Connection Pipe	05034302		1	
11	Gas-liquid Separator Sub-Assy	07225018		1	
12	Bidirection Accumulator	07228741		1	
13	Connecting Pipe of Ushape	05034290		1	
14	Right Side Plate Sub-Assy	01314304P		1	
15	StrainerA	07210022		1	
16	Cut-off Valve	07334403		1	
17	Cut-off Valve	07334402		1	
18	StrainerA	07210022		1	
19	Valve support assy	01804238		1	
20	oil separator	07228302		1	
21	Clamp	0214000521		1	
22	StrainerA	07210022		1	
23	4-way Valve	43000338		1	
24	Handle	26235253		2	
25	4-way Valve Assy	04144185		1	
26	Pressure Protect Switch	4602000902		1	
27	Discharge Tube Sub-Assy	04634310		1	
28	Inhalation Tube Sub-Assy	04674230		1	
29	Capillary Sub-Assy(Oil Separator)	04104239		1	
30	Condenser Assy	0112417901		1	
31	Rear Grill	01475012		1	
32	Electric Box Cover	01424263		1	
33	Top Cover	01255009P		1	
34	Electric reactor sub-assy	02404111		1	
35	Cover of Reactor box	01424260		1	
36	PFC Inductance	43128003		1	
37	Reactor Box	01424258		1	
38	Capacitor CBB61	33010009		1	
39	Electric Box	26905211		1	
40	Main Board	30226254		1	
41	Radiator	49018112		1	
42	Electric Box Sub-Assy	02404112		1	
43	Terminal Board	42010270		1	
44	Electric Box Assy	02404130		1	
45	electrical heater	76518732		1	
46	Left Side Plate	01305064P		1	

No	Description	Part Code	Note	Qty	Price Code
MODEL: MC-E42AI					
47	Condenser support plate	01895309		1	
48	Clapboard	01244141		1	
49	Fan Motor	1570522801		1	
50	Axial Flow Fan	10335010		1	
	Electric Expand Valve Fitting	4300876710		1	
	Electric Expand Valve Fitting	4300876709		1	
	Electric Expand Valve Fitting	4300876708		1	
	Electric Expand Valve Fitting	4300876707		1	
	Left Handle	26235401		1	
	Electric expand valve fitting	4300876705		1	
	Motor Support Assy	01804240		1	
	Magnet Coil	4300040029		1	
	Magnetic Ring	49010109		1	
	Terminal Board	420111041		5	
	Drainage Plug	06813401		2	
	Jumper Cap	4202300108		1	
	Magnetic Ring	49010104		2	

The data are subject to change without notice.